

Exhibit 1

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF TEXAS
HOUSTON DIVISION

IN RE APACHE CORP. SECURITIES
LITIGATION

Case No. 4:21-cv-00575

EXPERT REPORT OF ZACHARY NYE, PH.D.

April 7, 2023

Table of Contents

I.	Background and Qualifications.....	1
II.	Scope of Engagement	1
III.	Bases for Opinions.....	2
IV.	Summary of Opinions	3
V.	Overview of Apache’s Business Operations and “Discovery” Of Alpine High.....	3
VI.	The Market for Apache Common Stock Was Efficient Throughout the Class Period	7
	A. <i>Cammer</i> Factor 1: Weekly Trading Volume	16
	B. <i>Cammer</i> Factor 2: Number of Securities Analysts	17
	C. <i>Cammer</i> Factor 3: Number of Market Makers and the Potential for Arbitrage	20
	D. <i>Cammer</i> Factor 4: Eligibility to File SEC Form S-3	26
	E. <i>Cammer</i> Factor 5: Empirical Facts Showing a Cause-and-Effect Relationship Between Unexpected Corporate Events or Financial Releases and the Price Reaction of Apache Common Stock.....	29
	F. <i>Krogman</i> Factor 1: Market Capitalization	33
	G. <i>Krogman</i> Factor 2: Bid/Ask Spread.....	34
	H. <i>Krogman</i> Factor 3: Public Float.....	35
VII.	Damages Can Be Measured on a Class-Wide Basis and in a Manner Consistent with Lead Plaintiffs’ Theory of Liability.....	35
VIII.	Conclusion	39
	Appendix A: Description of Regression Analyses	41

I. Background and Qualifications

1. I am a financial economist and Vice President at Stanford Consulting Group, Inc. (“SCG”). Since 1981, SCG has provided economic research and expert testimony for business litigation, and regulatory and legislative proceedings. All SCG professionals hold masters or doctoral degrees in business, economics, finance or operations research, and certain senior consultants have testified as experts in these fields. I have an A.B. in Economics from Princeton University; an M.Sc. in Finance from the London Business School; and a Ph.D. in Finance from the Paul Merage School of Business at the University of California, Irvine. I have co-authored academic research published in peer-reviewed conference proceedings, as well as working papers with finance faculty at various universities. My research areas include the market efficiency of financial and derivative securities, volatility forecasting, risk management, financial econometrics, valuation and corporate finance. I have previously served as an expert witness in matters involving securities litigation, as well as business and intellectual property valuation. My curriculum vitae, which includes my academic research, publications in the past ten years, and expert testimony in the preceding four years, is attached hereto as Exhibit 1.

2. My current hourly rate is \$990. I have received assistance from individuals at SCG, who worked under my direction; their fees charged for this project are their standard hourly rates. Neither my compensation nor that of any individual at SCG is contingent on either my opinions set forth herein or the outcome of this litigation.

II. Scope of Engagement

3. I have been retained by counsel for the Court-appointed Lead Plaintiffs in this matter, Plymouth County Retirement Association and the Trustees of the Teamsters Union No. 142 Pension Fund (“Lead Plaintiffs”), to opine as to whether the common stock of Apache Corporation (“Apache” or the “Company”) traded in an efficient market during the period from

September 7, 2016 through March 13, 2020, inclusive (the “Class Period”). I also have been asked by counsel to opine on whether damages under §10(b) (“Section 10(b)”) of the Securities Exchange Act of 1934 (“Exchange Act”), and Rule 10b-5 promulgated thereunder by the SEC, can be calculated using a method that is common to each Class member and in a manner consistent with Lead Plaintiffs’ theory of liability, for investors who purchased or otherwise acquired Apache common stock during the Class Period and were damaged thereby.¹ However, I have not been asked at this time to calculate or opine on the amount of any such damages.

III. Bases for Opinions

4. My opinions are based upon my professional knowledge and experience, my review of documents and information relevant to this matter (*see* Exhibit 2), and the analyses described in this Report and its Exhibits. Documents, data, and other information that I have relied upon as bases for my opinions are cited in this Report and its Exhibits. Such documents and information are typically relied upon by financial experts in securities class actions and by financial economists in their research.

5. Counsel for Lead Plaintiffs has informed me that the record in this matter continues to be developed and that fact discovery is ongoing. To the extent relevant, I would expect to review additional information that may become available through discovery as well as the reports and deposition testimony of other expert witnesses. The opinions offered in this Report are subject to refinement or revision based on continuing analysis of the documents and information produced in discovery, as well as new or additional information that may be provided to or obtained by me in the course of this matter.

¹ The claims in this action are set forth in the Consolidated Class Action Complaint, dated December 17, 2021 (the “Complaint”).

IV. Summary of Opinions

6. As discussed below in §VI, based on my review of the available information in this matter, and careful analysis of data specific to Apache relating to the market efficiency factors detailed throughout this Report, I conclude that the market for Apache common stock was efficient throughout the Class Period.

7. As discussed in §VII, it is my opinion that damages under §10(b) of the Exchange Act, for investors who purchased or otherwise acquired Apache common stock during the Class Period and were damaged thereby, can be calculated using a methodology that is common to all members of the Class and in a manner that is consistent with Lead Plaintiffs' theory of liability.

V. Overview of Apache's Business Operations and "Discovery" Of Alpine High

8. During the Class Period, Apache described itself as an "independent energy company that explores for, develops, and produces natural gas, crude oil, and natural gas liquids," domestically and internationally.^{2, 3} According to the Company, its "mission [was] to grow a profitable exploration and production company in a safe and environmentally responsible manner for the long-term benefit of [its] shareholders."⁴ At the start of the Class Period, Apache described its "long-term perspective" as having "many dimensions, which are centered on the following core strategic components"; "rigorous portfolio management"; "conservative capital structure"; and

² Apache, SEC Form 10-K for year-end 2016, filed February 24, 2017, p. 1; Apache, SEC Form 10-K for year-end 2019, filed February 28, 2020, p. 1.

³ The Company was incorporated in Delaware in 1954. (*See* Apache, SEC Form 10-K for year-end 2016, filed February 24, 2017, p. 1.) As of year-ends 2016 and 2019, Apache had 3,727 and 3,163 employees, respectively. (*See* Apache, SEC Form 10-K for year-end 2016, filed February 24, 2017, p. 11; Apache, SEC Form 10-K for year-end 2019, filed February 28, 2020, p. 12.)

⁴ Apache, SEC Form 10-K for year-end 2016, filed February 24, 2017, p. 1.

“optimization of returns.”⁵ In 2016, Apache had “exploration and production operations in four geographic areas: the United States (U.S.), Canada, Egypt, and offshore the United Kingdom (U.K.) in the North Sea.”⁶

9. At the start of the Class Period, the Company announced the discovery of a “Significant New Resource Play” consisting of “307,000 contiguous net acres in wet gas and oil window” in the southern portion of the Delaware Basin, primarily in Reeves County, Texas.⁷ The Company’s September 7, 2016 press release stated that “after more than two years of extensive geologic and geophysical work, methodical acreage accumulation, and strategic testing and delineation drilling, the company can confirm the discovery of a significant new resource play, the ‘Alpine High.’”⁸ The press release provided the Company’s estimates of hydrocarbons in place at Alpine High, including “75 trillion cubic feet (Tcf) of rich gas” and “3 billion barrels of oil” in the Barnett and Woodford formations alone.⁹ The press release added that Apache also sees “significant oil potential in the shallower Pennsylvanian, Bone Springs and Wolfcamp formations,” and detailed key highlights of the discovery, such as the number of identified future drilling locations in specific geologic formations, stating there were “2,000 to more than 3,000 future drilling locations have been identified in the Woodford and Barnett formations alone.”¹⁰

⁵ Apache, SEC Form 10-K for year-end 2016, filed February 24, 2017, p. 1. *See also* Apache, SEC Form 10-K for year-end 2019, filed February 28, 2020, p. 1.

⁶ Apache, SEC Form 10-K for year-end 2016, filed February 24, 2017, p. 1. The Company “also ha[d] exploration interests in Suriname that may, over time, result in a reportable discovery and development opportunity.” (*Ibid.*)

⁷ *PR Newswire*, “Apache Corporation Discovers Significant New Resource Play In Southern Delaware Basin,” September 7, 2016. *See also* Complaint, ¶¶30, 32, 191.

⁸ *PR Newswire*, “Apache Corporation Discovers Significant New Resource Play In Southern Delaware Basin,” September 7, 2016. *See also* Complaint, ¶¶32, 191.

⁹ *Id.*

¹⁰ *Id.*

The press release quoted the Company’s Chief Executive Officer and President, Defendant John J. Christmann IV (“Christmann”), stating that Alpine High was “an immense resource that we believe will deliver significant value for our shareholders for many years.”¹¹

10. Defendant Christmann made similar statements announcing the “world class resource play” at Alpine High during a presentation at Barclays CEO Energy-Power Conference on September 7, 2016.¹² During the conference, Mr. Christmann reiterated and expanded on the information in its accompanying press release announcing Alpine High by adding detailed metrics concerning Apache’s accumulation of land, technical and comparative parameters, geologic factors, and examples of “Strong Well Results” and “Successful Oil Tests” for specific wells (among other things) that purportedly supported the Company’s substantial plans to focus on the Alpine High play.¹³

11. Thereafter, during the Class Period, Apache continued to highlight in its public statements to investors the Company’s “discovery of a significant new resource play, ‘Alpine High,’” to which the Company was directing a substantial amount of its capital expenditures.¹⁴ For example, the Company’s 2016 Annual Report, as well as subsequent securities filings and public statements to investors, reiterated the Company’s prior claims and repeatedly disclosed

¹¹ *Id.*

¹² *Bloomberg Transcripts*, “Apache Presentation Barclays CEO Energy Power Conference,” September 7, 2016. *See also* Complaint, ¶¶33, 192.

¹³ Apache, “Barclays CEO Energy-Power Conference” investor presentation slides, dated September 7, 2016. *See also* Complaint, ¶¶34–35, 192–94, 202.

¹⁴ *See* Complaint, ¶¶204–81.

increasing numbers of expected drilling locations and estimated amounts of recoverable oil and wet gas across Alpine High.¹⁵

12. In November 2018, Apache completed a transaction with Altus Midstream Company and its then wholly owned subsidiary Altus Midstream LP to create a publicly traded Permian Basin to Gulf Coast midstream infrastructure company “anchored by gathering, processing, and transmission assets at Alpine High.”¹⁶ As a result of the transaction, “Apache management ... established a new reporting segment for its Altus midstream business separate from upstream oil and gas development activities in the U.S.”¹⁷ Accordingly, as of year-end 2018, the Company had four reporting segments, three for its upstream activities in the United States, Egypt, and North Sea, and one for its midstream business, Altus.¹⁸

13. For fiscal-years 2016 through 2019, the Company’s reported net operating revenues, by reporting segment, were as follows:¹⁹

Revenues (in millions)	FY 2016	FY 2017	FY 2018	FY 2019
Upstream				
Egypt	\$2,057	\$2,307	\$2,748	\$2,276
North Sea	\$970	\$1,078	\$1,321	\$1,276
U.S.	\$1,997	\$2,271	\$3,279	\$2,763
Canada	\$343	\$231	-	-
Total oil and gas production revenues	\$5,367	\$5,887	\$7,348	\$6,315
Altus Midstream	-	\$15	\$77	\$136

¹⁵ Apache, SEC Form 10-K for year-end 2016, filed February 24, 2017, p. 3. *See also* Complaint, ¶¶ 225, 258, 270.

¹⁶ Apache, SEC Form 10-K for year-end 2019, filed February 28, 2020, p. 1.

¹⁷ *Id.*

¹⁸ Apache, SEC Form 10-K for year-end 2018, filed March 1, 2019, p. F-48; Apache, SEC Form 10-K for year-end 2019, filed February 28, 2020, p. F-53.

¹⁹ Apache, SEC Form 10-K for year-end 2019, filed February 28, 2020, pp. F-53 - F-55; Apache, SEC Form 10-K for year-end 2018, filed March 1, 2019, p. F-50.

14. During the Class Period, Apache’s common stock was listed and actively traded on the Nasdaq Stock Market (“NASDAQ”), the New York Stock Exchange (“NYSE”), and the Chicago Stock Exchange (“CHX”), under the ticker symbol “APA.”²⁰ After the Class Period, Apache announced that shares of its common stock would be exclusively listed on the NASDAQ.²¹

15. Following the Class Period, in 2021, the Company “completed a holding company reorganization ..., pursuant to which, Apache Corporation became a direct, wholly owned subsidiary of APA Corporation, and all of Apache Corporation’s outstanding shares were automatically converted into equivalent corresponding shares of APA.”²²

VI. The Market for Apache Common Stock Was Efficient Throughout the Class Period

16. In this case, Lead Plaintiffs have asserted the “fraud on the market” presumption of reliance.²³ The “fraud on the market” theory was addressed by the U.S. Supreme Court in *Basic, Inc. v. Levinson*:

In an open and developed securities market, the price of a company’s stock is determined by the available material information regarding the company and its business.... Misleading statements will therefore defraud purchasers of stock even if the purchasers do not directly rely on the misstatements.... The causal connection between the defendants’ fraud and the plaintiffs’ purchase of stock in such a case is no less significant than in a case of direct reliance on misrepresentations.²⁴

²⁰ Apache, SEC Form 10-K for year-end 2019, filed February 28, 2020, p. 1.

²¹ After the Class Period, on May 27, 2020, Apache “announced it ha[d] elected to list its common stock solely on the Nasdaq Stock Market beginning June 9, 2020. The company [would] discontinue listing its common stock on the New York Stock Exchange and the Chicago Stock Exchange after the market closes on June 8, 2020. Additionally, the company [would] discontinue listing its 7.75% notes due 2029 from the New York Stock Exchange on the same date, and such notes [would] no longer be listed on any national securities exchange.” (*Globe Newswire*, “Apache Corporation Announces Exclusive Listing on Nasdaq,” May 27, 2020, 4:45 PM.)

²² Apache, SEC Form 10-K for year-end 2021, filed February 22, 2022, p. 1.

²³ See Complaint, ¶¶326–31.

²⁴ *Basic, Inc. v. Levinson*, 485 U.S. 224, 241–242 (1988).

17. Since *Basic*, academic economists have debated various forms of the efficient capital market hypothesis (“ECMH”).²⁵ In 2014, the Supreme Court clarified that *Basic* did not “endorse ‘any particular theory of how quickly and completely publicly available information is reflected in market price.’”²⁶ On the contrary, the “fraud on the market” theory is based “on the fairly modest premise that ‘market professionals generally consider most publicly announced material statements about companies, thereby affecting stock market prices.’”²⁷ Under this theory, investors’ reliance on any public material misrepresentations and/or omissions may be presumed for purposes of a Rule 10b-5 action since the effects of those misrepresentations and/or omissions will already be impounded in the market price.²⁸

18. While the Supreme Court in *Halliburton II* stated that a market need only be “generally efficient” to invoke the “fraud on the market” presumption, it did not adopt any particular test of

²⁵ Generally speaking, academic economists consider there to be three forms of market efficiency: “weak” form, “semi-strong” form, and “strong” form market efficiency. (See Elton, E., M. Gruber, S. Brown and W. Goetzmann, *Modern Portfolio Theory and Investment Analysis*, 6th ed., John Wiley and Sons, Inc., 2007, p. 400.) In “fraud on the market” litigation, several courts reference the semi-strong form of market efficiency, which implies that market prices incorporate all publicly available information. In academic finance literature, this is referred to as “informational efficiency.” This hypothesis has been empirically validated in numerous studies. (See, e.g., Fama, Eugene F., 1970 “Efficient Capital Markets: A Review of Theory and Empirical Work,” *Journal of Finance*, Vol. 25, Issue 2, pp. 383–417.) The ECMH also has stood up against its critics; while anomalies have occurred in financial markets, they appear to be random and do not allow for trading strategies that would create abnormal profits. (See, e.g., Fama, Eugene F., 1998, “Market Efficiency, Long-term Returns, and Behavioral Finance,” *Journal of Financial Economics*, Vol. 49, pp. 283–306; Malkiel, Burton G., 2003, “The Efficient Market Hypothesis and Its Critics,” *Journal of Economic Perspectives*, Vol. 17, pp. 59–82.)

²⁶ *Halliburton Co. v. Erica P. John Fund, Inc.*, 134 S. Ct. 2398, 2403 (2014) (“*Halliburton II*”), quoting *Basic*, 485 U.S. at 248, n. 28.

²⁷ *Id.*, quoting *Basic*, 485 U.S. at 246, n. 24.

²⁸ *Basic*, 485 U.S. at 241–242, 244, quoting *Peil v. Speiser*, 806 F.2d 1154, 1160–61 (3d Cir. 1986). See also, *Erica P. John Fund, Inc. v. Halliburton Co.*, 563 U.S. 804 (2011) (“*Halliburton I*”).

general market efficiency.²⁹ Accordingly, I consider in this Report tests of efficiency that courts have commonly used in securities litigation for over 30 years. An empirical test of market efficiency is to examine price responsiveness to the release of new, value-relevant information about the company in question. If the security price responds relatively quickly, the response supports a conclusion that the market for the security is efficient. Additional tests include the examination of certain market conditions that have been found to promote efficiency.

19. Consistent with *Basic* and *Halliburton II*, the oft-cited *Cammer v. Bloom* decision considered “efficient markets” to be “markets which are so active and followed that material information disclosed by a company is expected to be reflected in the stock price.”³⁰ The court in *Cammer* identified five non-exhaustive factors that may be considered in determining whether the market for a security is efficient.³¹ I understand that courts throughout the country assessing the applicability of the “fraud on the market” doctrine, including courts in the Fifth Circuit, have widely adopted these five factors in evaluating market efficiency.³² In concluding that the market for Apache common stock was efficient throughout the Class Period, I considered each of the following five *Cammer* factors as applied to the stock:

- i. whether the security trades at a large weekly volume;

²⁹ *Halliburton II*, 134 S. Ct. at 2404.

³⁰ *Cammer v. Bloom*, 711 F. Supp. 1264, 1273 n.11 (D.N.J. 1989).

³¹ “The vast majority of courts have used the *Cammer* factors as ‘an analytical tool rather than as a checklist.’ Indeed, not even the *Cammer* court considered the fifth factor necessary, stating only that ‘it would be helpful to a plaintiff seeking to allege an efficient market’” *Carpenters Pension Trust Fund of St. Louis v. Barclays PLC*, 310 F.R.D. 69, 83 (S.D.N.Y. 2015). “Different contexts require courts to place greater importance on some factors than on others. No other court has adopted a per se rule that any one factor is dispositive. At the same time, courts have found market efficiency in the absence of an event study or where the event study was not definitive.” *Id.*, 310 F.R.D. at 84.

³² *Unger v. Amedisys Inc.*, 401 F.3d 316, 323 (5th Cir. 2005); *Bell v. Ascendant Solutions, Inc.*, 422 F.3d 307, 313 n.10 (5th Cir. 2005).

- ii. whether analysts follow and report on the security;
- iii. whether the security has market makers and whether there is a potential for arbitrage activity;
- iv. whether the company is eligible to file SEC Form S-3; and
- v. whether empirical facts show a cause-and-effect relationship between the release of new, value-relevant information about the company in question and a response in the security's price.³³

20. In addition to these five *Cammer* Factors, I have considered three other factors that have also been applied by courts in the Fifth Circuit in evaluating market efficiency, which are commonly referred to as the “Krogman” factors, per the court’s decision in *Krogman v. Sterritt*, 202 F.R.D. 467 (N.D. Tex. 2001).³⁴ These additional factors are:

- i. the company’s market capitalization;
- ii. the bid/ask spread on transactions in the security; and
- iii. the security’s public float.

21. As demonstrated below in §VI.A–§VI.H, an analysis of these factors supports my conclusion that the market for Apache common stock was informationally efficient throughout the Class Period.

22. With regard to this analysis of market efficiency, it is worth noting that Apache common stock was listed and actively traded on the NASDAQ, the NYSE, and the CHX, throughout the Class Period.³⁵ A security’s listing on a national securities exchange means that financial information about that company is readily available to investors, at a minimum, through the

³³ *Cammer*, 711 F. Supp. at 1285–1287.

³⁴ See *Unger*, 401 F.3d 316 at 323 (“[the *Cammer* and *Krogman* factors] have been used by many courts throughout the country and within this circuit”); *Bell*, 422 F.3d 307 at 313, n10.

³⁵ Apache, SEC Form 10-K for year-end 2016, filed February 24, 2017, p. 24; Apache, SEC Form 10-K for year-end 2019, filed February 28, 2020, p. 25.

company's SEC filings, and that investors have access to trading prices and volumes throughout the trading day.³⁶ Rules of the U.S. National Market System ("NMS") also require that investor orders be filled at the best price that can be executed immediately, even if that price is available in a different market.^{37, 38} Because listing on a national securities exchange brings together many

³⁶ According to the Consolidated Tape Association's website (<https://www.ctaplan.com/index>):

The Consolidated Tape Association (CTA) oversees the dissemination of real-time trade and quote information in New York Stock Exchange LLC (Network A) and Bats, NYSE Arca, NYSE American and other regional exchange (Network B) listed securities. Since the late 1970s, all SEC-registered exchanges and market centers that trade Network A or Network B securities send their trades and quotes to a central consolidator where the Consolidated Tape System (CTS) and Consolidated Quote System (CQS) data streams are produced and distributed worldwide.

The current Participants include the Cboe BYX Exchange, Inc., Cboe BZX Exchange, Inc., Cboe EDGA Exchange, Inc., Cboe EDGX Exchange, Inc., Cboe Exchange, Inc., Financial Industry Regulatory Authority, Inc., Investors Exchange LLC, Long-Term Stock Exchange, Inc., MEMX LLC, MIAX Pearl, LLC, Nasdaq BX, Inc., Nasdaq ISE, LLC, Nasdaq PHLX LLC, Nasdaq Stock Market LLC, New York Stock Exchange LLC, NYSE American LLC, NYSE Arca, Inc., NYSE Chicago, Inc., and NYSE National, Inc. (collectively, the "Participants").

³⁷ Bodie, Zvi, Alex Kane, and Alan J. Marcus, *Investments*, McGraw-Hill/Irwin, 7th ed., 2008, Ch. 3, pp. 73, 74.

³⁸ SEC Regulation NMS requires all trading centers in the U.S. "to establish, maintain, and enforce written policies and procedures reasonably designed to prevent the execution of trades at prices inferior to protected quotations displayed by other trading centers." (*See* SEC Regulation NMS, Securities Exchange Act Release No. 51808 (Jun. 9, 2005), 70 FR 37496 (Jun. 29, 2005) at 37496). According to the SEC:

The NMS is premised on promoting fair competition among individual markets, while at the same time assuring that all of these markets are linked together, through facilities and rules, in a unified system that promotes interaction among the orders of buyers and sellers in a particular NMS stock. The NMS thereby incorporates two distinct types of competition – competition among individual markets and competition among individual orders – that together contribute to efficient markets. Vigorous competition among markets promotes more efficient and innovative trading services, while integrated competition among orders promotes more efficient pricing of individual stocks for all types of orders, large and small. Together, they produce markets that offer the greatest benefits for investors and listed companies. [*See id.*, at 37498–9.]

thousands (or millions) of investors, trading prices on such an exchange reflect a consensus opinion as to a security's value.

23. The NASDAQ is an electronic stock market that displays the bid and ask quotes of market makers through a worldwide network of thousands of computer terminals. NASDAQ investors have access to real-time pricing and continuous trading. In addition, companies that are listed on the NASDAQ must meet certain financial, trading, and corporate governance criteria. The NASDAQ was the listing market for 2,565 and 2,720 public companies in September 2016 and March 2020, respectively.³⁹ As of March 2020, the total market capitalization of all companies listed on the NASDAQ was \$11.2 trillion,⁴⁰ and the median and mean market capitalization of companies listed on the NASDAQ was \$273.9 million and \$5.0 billion, respectively.⁴¹ During the Class Period, Apache was listed on the Nasdaq Global Select Market, the highest tier of the broader Nasdaq Stock Market.⁴² The Nasdaq Global Select Market has the most stringent initial financial and liquidity listing requirements of the NASDAQ's three market tier designations:

³⁹ World Federation of Exchanges, Equity Market Highlights for September 2016 and March 2020, available at <https://statistics.world-exchanges.org/PredefinedReport>.

⁴⁰ *Ibid.*

⁴¹ Source: Bloomberg (includes companies whose primary listing of common stock is on the NASDAQ, excluding companies with no data available).

⁴² <https://www.nasdaq.com/solutions/nasdaq-stock-market-tiers>.

The Nasdaq Stock Market has three distinctive tiers: The Nasdaq Global Select Market®, The Nasdaq Global Market® and The Nasdaq Capital Market®. Applicants must satisfy certain financial, liquidity and corporate governance requirements to be approved for listing on any of these market tiers. ... [T]he initial financial and liquidity requirements for the Nasdaq Global Select Market are more stringent than those for the Nasdaq Global Market and likewise, the initial listing requirements for the Nasdaq Global Market are more stringent than those for the Nasdaq Capital Market. Corporate governance requirements are the same across all Nasdaq market tiers.⁴³

24. The NYSE is a leading global cash equity exchange, listing common stocks, preferred stocks and warrants, as well as structured products, such as capital securities and mandatory convertible securities.⁴⁴ The NYSE was the listing market for 2,316 and 2,159 public companies in September 2016 and March 2020, respectively.⁴⁵ As of March 2020, the total market capitalization of all companies listed on the NYSE was \$15.6 trillion,⁴⁶ and the median and mean market capitalization of companies listed on the NYSE was \$2.5 billion and \$13.6 billion, respectively.⁴⁷ The NYSE is a “national securities exchange” registered with the SEC under §6 of the Exchange Act,⁴⁸ and “the [NYSE’s] current form of listing agreement generally seeks to achieve the following objectives”:⁴⁹

- Ensure timely disclosure of information that may affect security values or influence investment decisions, and in which shareholders, the public and the Exchange have a warrantable interest;

⁴³ <https://listingcenter.nasdaq.com/assets/initialguide.pdf>.

⁴⁴ Intercontinental Exchange, Inc., Form 10-K for 2017, filed February 7, 2018, p. 8.

⁴⁵ World Federation of Exchanges, Monthly Report for September 2016 and March 2020 (available at <https://statistics.world-exchanges.org/PredefinedReport>).

⁴⁶ *Ibid.*

⁴⁷ Source: Bloomberg (includes companies whose primary listing of common stock is on the NYSE, excluding companies with no data available).

⁴⁸ <https://www.investor.gov/introduction-investing/investing-basics/glossary/national-securities-exchange>; <https://www.sec.gov/rules/sro.shtml>.

⁴⁹ <https://nyseguide.srorules.com/listed-company-manual>. (Select: Section 2 - Disclosure and Reporting Material Information > 201.00 Introduction.)

- Ensure frequent, regular and timely publication of financial reports prepared in accordance with generally accepted accounting principles;
- Provide the Exchange with timely information to enable it to efficiently perform its function of maintaining an orderly market for the company's securities, to enable it to maintain necessary records and to allow it the opportunity to make comment as to certain matters before they become established facts; and
- Preclude certain business practices not generally considered sound.⁵⁰

25. The CHX was acquired by the Intercontinental Exchange, “a leading operator of global exchanges and clearing houses and provider of data and listings services,” during the Class Period, in July 2018.⁵¹ The Chicago Stock Exchange was subsequently renamed “NYSE Chicago.”⁵² According to its website, “NYSE Chicago is a fully-electronic equities exchange with unique features to support the Institutional Brokers serving the exchange-traded derivatives community. ... [T]he modernized NYSE Chicago uses NYSE Pillar order entry/market data protocols and order types, designed to improve efficiency and reduce complexity for customers.”⁵³ “As a registered securities exchange, NYSE Chicago is subject to the regulatory oversight of the SEC,” including “all rules and rule amendments filed and approved by the SEC pursuant to Section 19(b) of the Securities and Exchange Act of 1934 and Rule 19b-4 thereafter.”^{54, 55}

⁵⁰ *Ibid.*

⁵¹ *Business Wire*, “Intercontinental Exchange Finalizes Acquisition of Chicago Stock Exchange,” July 18, 2018, 8:33 AM.

⁵² *Dow Jones Institutional News*, “Chicago Stock Exchange to Become ‘NYSE Chicago’ – Market Talk,” February 14, 2019, 8:54 AM.

⁵³ <https://www.nyse.com/markets/nyse-chicago>.

⁵⁴ <https://www.nyse.com/regulation/nyse-chicago/rules>.

⁵⁵ Prior to its acquisition by the Intercontinental Exchange, CHX described its exchange as follows:

26. The market for securities trading on major U.S. exchanges is widely recognized as efficient. At least one authority has commented that:

at a minimum, there should be a presumption—probably conditional for class determination—that certain markets are developed and efficient for virtually all the securities traded there: the New York and American Stock Exchanges, the Chicago Board Options Exchange and the NASDAQ National Market System.⁵⁶

Similarly, the court in *Cammer* stated:

some may concur with [Defendant's] suggestion ... that companies listed on national stock exchanges or companies entitled to issue new securities using SEC Form S-3 would almost by definition involve stocks trading in an “open and developed” market.⁵⁷

27. The fact that Apache common stock was listed and actively traded on the NASDAQ, NYSE, and CHX supports my conclusion that the market for the stock was efficient throughout the Class Period. Furthermore, my analyses of the efficiency factors set forth below confirm the attributes of market efficiency that Apache's listing on a major national exchange strongly implies.

CHX is an integral part of the National Market System. CHX competes with all U.S. equity markets. CHX offers the ability to transact business in virtually all equity securities traded on NYSE, AMEX, NASDAQ, or other national securities exchanges. With a robust Matching System and connectivity to multiple order sending firms and market makers, CHX systems offer functionality beyond the simple matching of orders. CHX is an ideal venue for hedge funds, options market makers, quantitative traders, professional traders, and active individual traders that require immediate and automated execution, in addition to serving the needs of traditional broker-dealer clients and the individual investors they represent.

(<https://web.archive.org/web/20161010170959/http://www.chx.com/chx.>)

⁵⁶ Bromberg & Lowenfels, 4 Securities Fraud and Commodities Fraud, Section 8.6 (Aug. 1988) (quoted in *Cammer*, 711 F. Supp at 1292).

⁵⁷ *Cammer*, 711 F. Supp. at 1276–77.

A. *Cammer* Factor 1: Weekly Trading Volume

28. A market for a security is liquid if investors can trade a large number of securities on demand. Liquidity allows investors to buy and sell securities quickly when their assessments about the value of a company have changed, facilitating the prompt price reaction to new, value-relevant information that is characteristic of an efficient market. The large weekly trading volume of Apache common stock during the Class Period indicates the presence of a liquid market.

29. According to the *Cammer* decision:

[T]he existence of an actively traded market, as evidenced by a large weekly volume of stock trades, suggests there is an efficient market ... because it implies significant investor interest in the company. Such interest, in turn, implies a likelihood that many investors are executing trades on the basis of newly available or disseminated corporate information.⁵⁸

30. Under *Cammer*, “turnover measured by average weekly trading of 2% or more of the outstanding shares would justify a strong presumption that the market for the security is an efficient one; 1% would justify a substantial presumption.”⁵⁹ During the Class Period, the total number of Apache shares issued and outstanding was between 375.4 million and 382.5 million shares.⁶⁰ The average weekly reported trading volume for Apache shares, excluding weeks not entirely contained within the Class Period, was as follows:^{61, 62}

⁵⁸ *Cammer*, 711 F. Supp. at 1286.

⁵⁹ *Cammer*, 711 F. Supp. at 1293.

⁶⁰ Source: Bloomberg.

⁶¹ These results are based on Apache’s composite trading volume across all domestic exchanges and trading centers in the U.S.

⁶² See Exhibit 4 for a summary of weekly trading volume and shares outstanding for Apache common stock.

Apache Common Stock	
Average Weekly Trading Volume in Dollars	\$804,396,460
Average Weekly Trading Volume in Shares	21,509,586
Average Weekly Share Trading Volume as a % of Shares Outstanding	5.7%

Thus, the average weekly reported trading volume for Apache common stock was almost three times the 2% “strong presumption” of market efficiency set out by *Cammer*.

31. The high trading volume observed during the Class Period demonstrates an actively traded market for Apache common stock, showing significant investor interest in the Company and implying a likelihood that many investors executed trades on the basis of newly available or disseminated corporate information. These circumstances support my conclusion that Apache common stock traded in an efficient market throughout the Class Period.

B. *Cammer* Factor 2: Number of Securities Analysts

32. In demonstrating market efficiency, the *Cammer* decision states:

[I]t would be persuasive to allege a significant number of securities analysts followed and reported on a company’s stock during the class period. The existence of such analysts would imply, for example, the [auditor’s] reports were closely reviewed by investment professionals, who would in turn make buy/sell recommendations to client investors. [] In this way the market price of the stock would be bid up or down to reflect the financial information contained in the [auditor’s] reports, as interpreted by the securities analysts.⁶³

33. Securities analysts research and report to investors on the financial condition and prospects of a covered company. Analysts are conduits to the market for information collected from on-site visits, conference calls accompanying key company announcements, and other contacts with senior management. Analysts can channel new information to the market through their published reports, online reporting services, and alerts given to clients and other employees

⁶³ *Cammer*, 711 F. Supp. at 1286.

of the same investment firm. Analysts, as well as other commentators in the financial news media, thus facilitate the dissemination of new information to investors and any corresponding price reaction in a company's securities.

34. During the Class Period, several well-known investment firms followed and published research reports on Apache that are publicly available from Refinitiv Eikon,⁶⁴ including, but not limited to the following 30 firms: Argus Research Corporation; Barclays; BMO Capital Markets; BofA Global Research; Boston Energy Research; Cowen and Company; Credit Suisse; Deutsche Bank; EVERCORE ISI; Jefferies; JPMorgan; KLR Group; Macquarie Research; MKM Partners; Morgan Stanley; Morningstar, Inc.; MUFG Securities Americas Inc.; NatAlliance; Piper Sandler Companies; RBC Capital Markets; Scotiabank GBM; Seaport Global Securities LLC; Societe Generale; Stephens Inc.; Susquehanna Financial Group LLLP; Truist Securities; UBS Equities; Wells Fargo Securities, LLC; Wolfe Research; and Zacks Equity Research.⁶⁵ Over 1,200 analyst reports pertaining to the Company were issued during the Class Period.⁶⁶ According to Bloomberg, the following 19 investment firms also followed and issued reports on the Company during the Class Period: Alembic Global Advisors; Atlantic Equities; Bernstein; Capital One Securities; Citi; CLSA; Edward Jones; Goldman Sachs; IBERIA Capital Partners; ISS-EVA; Johnson Rice; KeyBanc Capital Markets; Mizuho Securities; Nomura; Nomura Instinet; Peters &

⁶⁴ Refinitiv Eikon "provide[s] the most comprehensive platform of non-real-time research in the marketplace, with over 30 million research reports from over 1,900 sources, dating back to 1982." (See <https://www.refinitiv.com/en/financial-data/company-data/broker-market-independent-research/aftermarket-research>.)

⁶⁵ See Exhibit 5. Exhibit 5B lists research reports on Apache available from Refinitiv Eikon. These reports are only a subset of all reports pertaining to Apache published during the Class Period. Other databases, including restricted databases, may carry research reports pertaining to Apache that are not included in Exhibit 5B. Furthermore, it is my understanding that certain analyst firms do not make all their reports available through historical and/or public databases.

⁶⁶ *Ibid.*

Co.; Raymond James; Stifel; and Tudor Pickering & Co.⁶⁷ In addition, analysts from Heikkinen Energy Advisors, LLC; Simmons & Company International; SunTrust Robinson Humphrey, Inc; and Tuohy Brothers Investment Research, Inc. participated in at least one of the Company's conference calls during the Class Period.⁶⁸

35. Investors also received information and analyses about Apache during the Class Period via media coverage (including in the mainstream media, financial media, and investment media), investor conferences, trade magazines, Company presentations and SEC filings. Specifically, articles concerning Apache appeared in major domestic and international news media including: *ACCESSWIRE*; *Benzinga.com*; *Bloomberg*; *Business Wire*; *Contify Energy News*; *Dow Jones Newswires*; *Energy Intelligence Finance*; *Energy Weekly News*; *FinancialWire (U.S.)*; *Forbes*; *GlobeNewswire (U.S.)*; *Houston Business Journal*; *Houston Chronicle*; *International Oil Daily*; *Investing.com*; *Investor's Business Daily (U.S.)*; *M2 Presswire*; *MarketLine*; *Marketscreener.com*; *MarketWatch*; *Mondaq Business Briefing*; *National Post*; *Oil & Gas 360*; *Platts*; *PR Newswire*; *Reuters*; *RTT News (U.S.)*; *San Antonio Business Journal Online*; *San Antonio Express News*; *Seeking Alpha*; *SNL Financial*; *SHALE Magazine*; *The Associated Press*; *The Australian*; *The Canadian Press*; *The Daily Oil Bulletin*; *The Deal (U.S.)*; *The Globe and Mail*; *The Oil Daily*; *The Telegraph (U.K.)*; *The Times (U.K.)*; *The Wall Street Journal*; *Theflyonthewall.com*; and *VIQ FD Disclosure (U.S.)*.⁶⁹

⁶⁷ See Exhibit 5C, which lists analysts' price targets and rating actions on selected event dates as reported by Bloomberg.

⁶⁸ See, e.g., *Thomson Reuters, StreetEvents*, "Edited Transcript, APA – Q4 2017 Apache Corp Earnings Call, Event Date/Time: February 22, 2018 / 7:00PM GMT," February 22, 2018, 2:00 PM; *Thomson Reuters, StreetEvents*, "Edited Transcript, APA – Q3 2019 Apache Corp Earnings Call, Event Date/Time: October 31, 2019 / 3:00PM GMT," October 31, 2019, 11:00 AM.

⁶⁹ Source: Dow Jones' Factiva (www.factiva.com); Bloomberg; internet search.

36. In addition, Apache's filings with the SEC were publicly available online during the Class Period at no cost.⁷⁰ Apache's SEC filings during the Class Period included its consolidated quarterly and year-end financial statements, press releases, and statements.⁷¹ Apache's financial statements, press releases and SEC filings are also made available on the Company's website.⁷²

37. The coverage of Apache by securities analysts and the amount of public reporting on Apache during the Class Period indicate that Company-specific news was widely disseminated to investors, thereby facilitating the incorporation of such information into the market price of Apache common stock. Accordingly, this factor supports my conclusion that Apache common stock traded in an efficient market throughout the Class Period.

C. *Cammer* Factor 3: Number of Market Makers and the Potential for Arbitrage

38. The third *Cammer* factor concerns the existence of market makers and arbitrageurs who can react quickly to news and facilitate trading. As discussed below, the fact that trading in Apache common stock was facilitated by numerous market makers, including a designated market maker on the NYSE, and the fact that investors could have exploited arbitrage opportunities during the Class Period, support a finding of market efficiency.

Market Makers

39. Market makers enable investors to trade promptly upon the arrival of new, value-relevant information, thereby facilitating the incorporation of new information into securities prices. During the Class Period, Apache was listed and traded on the NASDAQ. NASDAQ market participants are made up of "market makers, order-entry firms and electronic communications

⁷⁰ The SEC's EDGAR website is located at <http://www.sec.gov/edgar.shtml>.

⁷¹ Exhibit 6 includes a list of Apache's filings with the SEC during the Class Period.

⁷² See <https://investor.apacorp.com/>.

networks (ECNs) that utilize NASDAQ's trading services."⁷³ NASDAQ defines a market maker as a "NASDAQ member firm that buys and sells securities at prices it displays in NASDAQ for its own account (principal trades) and for customer accounts (agency trades)."⁷⁴ Market makers help to ensure a liquid market for a particular stock; a market in which willing buyers can readily find willing sellers, and vice versa. A market maker is obligated to "engage in a course of dealings for its own account to assist in the maintenance, insofar as reasonably practicable, of fair and orderly markets."⁷⁵ Market makers in a particular stock stand ready to provide stock price quotations and facilitate trading by purchasing that stock from and selling to investors. They also buy and sell securities and may increase or reduce their inventory when pricing discrepancies exist. Market makers display both buy and sell quotes in all securities in which they choose to make a market and are subject to disciplinary action if they fail to honor their quoted prices.⁷⁶ Accordingly, market efficiency can be facilitated by market maker involvement.

40. I obtained NASDAQ market maker activity in Apache common stock from Bloomberg. During the Class Period, there were over 170 active market makers that traded Apache common stock (data reported monthly from September 2016 to March 2020, inclusive). In addition, many of the market makers that facilitated trading in Apache common stock handled a sizeable volume of shares.⁷⁷ The substantial number of market makers for Apache common stock supports my conclusion that the market for the stock was efficient throughout the Class Period.

⁷³ <https://www.nasdaqtrader.com/Trader.aspx?id=MarketMakerProcess>.

⁷⁴ *Ibid.*

⁷⁵ Nasdaq Rule 4600, Requirements for Nasdaq Market Makers and Other Nasdaq Market Center Participants (available at https://listingcenter.nasdaq.com/assets/rulebook/nasdaq/rules/new_listing_rules.pdf).

⁷⁶ *Ibid.*

⁷⁷ See Exhibit 7 for the share volume by market maker for Apache common stock.

41. The NYSE, where Apache common stock was also listed during the Class Period, uses a single designated market-maker (“DMM”), formerly known as a specialist, to maintain a competitive and efficient market for the securities assigned to that firm. DMMs are independent companies in corporate or partnership structures that have obligations to “quote at the NBBO [National Best Bid and Offer] a specified percentage of the time, and facilitate price discovery throughout the day as well as at the open, close and in periods of significant imbalances and high volatility.”^{78, 79} DMMs “manage a physical auction to combine with an automated auction that includes algorithmic quotes from other DMMs and market participants.”⁸⁰ DMMs are also “required to meet stringent NYSE depth and continuity standards.”⁸¹ DMMs thus enable investors to trade promptly upon the arrival of new relevant information, allowing new information to be rapidly reflected in security prices.

Arbitrage Activity

42. Related to *Cammer* Factor 3 is the existence of arbitrageurs, sophisticated investors who can act rapidly to take advantage of security pricing discrepancies. Arbitrageurs ensure that market prices reflect public information—the fundamental hallmark of market efficiency.⁸² As I

⁷⁸ “NBBO” is the national best bid and offer prices for a security available in all exchanges and quoted by market makers at any given time.

⁷⁹ <https://www.nyse.com/market-model>.

⁸⁰ <https://www.nyse.com/markets/nyse/membership>.

⁸¹ *Ibid.*

⁸² Arbitrage has been defined as:

... the process of earning riskless profits by taking advantage of differential pricing for the same physical asset or security. As a widely applied investment tactic, arbitrage typically entails the sale of a security at a relatively high price and the simultaneous purchase of the same security (or its functional equivalent) at a relatively low price.

demonstrate below, the level of short interest, the degree of institutional ownership and the tightness of bid/ask spreads suggest that arbitrage activity for Apache common stock was prevalent during the Class Period.

43. One way in which arbitrageurs can exploit mispricing in the market is by engaging in short-sale transactions. A short sale is a transaction in which an investor sells a stock that he or she does not own and then purchases that stock back in the future. If the price declines between the time a security is sold short and the time it is purchased, the short seller realizes a gain. Thus, short selling is an advantageous strategy if an arbitrageur expects a security's price to decline in the future.⁸³ Furthermore, short sales allow arbitrageurs that currently do not own a security to convey their opinions to the market, thereby helping the market to achieve a consensus as to that security's fair value given all publicly available information.

44. During the Class Period, the average short interest as a percentage of publicly available shares outstanding for the total U.S. market was 3.92%.⁸⁴ Similarly, economist Gene D'Avolio found that short interest was, on average, 2.30% of shares outstanding for companies listed in the U.S. during the period April 2000 to September 2001.⁸⁵ D'Avolio also estimated that as much as

Arbitrage activity is a critical element of modern, efficient security markets. Because arbitrage profits are by definition riskless, all investors have an incentive to take advantage of them whenever they are discovered. Granted, some investors have greater resources and inclination to engage in arbitrage than others. However, it takes relatively few of these active investors to exploit arbitrage situations and, by their buying and selling actions, eliminate these profit opportunities. (Sharpe, William F., *et al.*, *Investments*, Prentice Hall, 6th ed., 1999, p. 284.)

⁸³ Berk, Jonathan and Peter DeMarzo, *Corporate Finance*, Pearson Education, Inc., 1st ed., 2007, Ch. 11, p. 339.

⁸⁴ See Exhibit 8A. Source: Bloomberg, "SFUSTOTL Index," which "display[s] aggregated short interests vs. float ratio (%) from companies listed on NYSE, NASDAQ and AMEX."

⁸⁵ D'Avolio, Gene, 2002, "The market for borrowing stock," *Journal of Financial Economics*, Vol. 66, pp. 271–306.

one-quarter of the U.S. market capitalization was available as loan supply for short-selling and that only 7% of that capacity was utilized, thereby indicating that “[t]he aggregate market is easy to borrow.”⁸⁶ In comparison, the average short interest for Apache common stock during the Class Period was 6.93% of its public float.^{87, 88} Thus, arbitrageurs were not constrained in their ability to short shares of Apache common stock during the Class Period.

45. Institutional ownership is another indicator of arbitrage activity because institutional investors, such as pension funds, mutual funds and investment banks, are generally considered to be sophisticated investors that have ready access to minute-to-minute public financial news and to online bulletins from analysts. Institutional ownership implies that investment professionals actively review company-specific financial information and, in turn, make buy/sell recommendations to their firm and/or client investors. In this way, investors bid up or down the

⁸⁶ *Id.*, p. 273.

⁸⁷ See Exhibit 8B for a summary of short interest for Apache common stock during the Class Period. Public float is equal to shares outstanding less insider holdings. A comparison of short interest to public float is relevant as public float represents the shares available to lend for short sales.

⁸⁸ FINRA (the Financial Industry Regulatory Authority) was created in July 2007 from the consolidation of the NASD and various regulatory functions of the NYSE. It is a non-governmental organization that regulates member brokerage firms and exchange markets, and is overseen by the SEC, the ultimate regulator of the U.S. securities industry, including FINRA. (See <https://www.finra.org/media-center/news-releases/2007/nasd-and-nyse-member-regulation-combine-form-financial-industry>.) Every firm and broker that sells securities to the public in the United States must be licensed and registered by FINRA. (See <https://www.finra.org/registration-exams-ce/broker-dealers/new-firms>.) Pursuant to FINRA Rule 4560:

member firms are required to report total short positions in all customer and proprietary firm accounts in all equity securities to FINRA on a bi-monthly basis. These filings are made online using the Short Interest reporting system accessible via FINRA Gateway at firms.finra.org. ... Member firms that have short positions in OTC equity securities and in securities listed on a national securities exchange, such as NASDAQ, NYSE, NYSE American, NYSE Arca, Cboe BZX, and IEX, must file a Short Position Report with FINRA via the Web-based system. (See <https://www.finra.org/filing-reporting/short-interest/regulation-filing-applications-instructions>.)

market price of a security to reflect all publicly available information, as interpreted by institutional investors. Moreover, because short sellers often borrow shares from institutions, a high degree of institutional ownership relative to the level of short interest indicates a lack of short-sale constraints, thereby facilitating market efficiency by enabling arbitrageurs to engage in short selling.⁸⁹

46. According to quarter-end holdings data for Apache common stock provided by Refinitiv Eikon, during the Class Period, institutions held over 90% of the shares available to trade, and between 811 and 1,128 institutional investors held Apache common stock.^{90, 91} Additionally, institutional holdings were, on average, more than 14 times the level of short interest in Apache common stock during the Class Period, further indicating that short selling was not constrained.⁹²

47. Another indicator of the potential for arbitrage activity to correct market inefficiencies (*i.e.*, arbitrage opportunities) is the size of bid/ask spreads.⁹³ Bid/ask spreads are a measure of transaction costs and low transaction costs indicate that arbitrage opportunities can be exploited readily. As shown in the following table, during the Class Period, the average and median

⁸⁹ Asquith, Paul, Parag A. Pathak and Jay R. Ritter, 2005, “Short interest, institutional ownership and stock returns,” *Journal of Financial Economics*, Vol. 78, pp. 243–76. Asquith *et al.* find that “[i]n a typical year, there are 5,500 domestic operating companies trading on the NYSE, Amex, and the Nasdaq National Market System. For these stocks, ... institutional ownership is greater than short sales for 95% of stocks, suggesting that short-sale constraints are not common.” (*Id.*, p. 245.)

⁹⁰ “Shares available to trade” is equal to shares outstanding plus short interest less insider holdings.

⁹¹ Institutions that file Form 13F with the SEC report shares held as of the end of each calendar quarter. See Exhibit 9 for a summary of institutional holdings for Apache common stock during the Class Period.

⁹² The average number of shares held by institutions for the quarters ended during the Class Period was 379.2 million, and the average short interest during the Class Period was approximately 26.2 million.

⁹³ *Unger*, 401 F.3d 316 at 323, *Krogman*, 202 F.R.D. at 478.

bid/ask spreads on Apache common stock were smaller than those of randomly sampled stocks listed on the NYSE.⁹⁴

	APA Common Stock		NYSE Sample	
	Spread (\$)	Spread (%)	Spread (\$)	Spread (%)
Average:	\$0.01	0.03%	\$0.03	0.13%
Median:	\$0.01	0.03%	\$0.03	0.11%

48. The fact that Apache's bid/ask spreads were smaller than those of other stocks listed on the NYSE supports my conclusion that Apache common stock traded in an efficient market throughout the Class Period.

D. *Cammer* Factor 4: Eligibility to File SEC Form S-3

49. The *Cammer* court discussed the relationship between S-3 eligibility and market efficiency, noting that "[t]he issue is not whether [the company] recently completed a public offering, but whether, if it did, it would enjoy the benefit of making abbreviated prospectus disclosure because the SEC viewed it to be in an efficient market where documents 'on file' could be deemed to be known by the investment community."⁹⁵

50. Form S-3 is a simplified registration form that may be used by U.S. companies that meet the following requirements:

- i. it has been subject to the Securities Exchange Act of 1934 reporting requirements for more than one year;
- ii. it has filed all required documents in a timely manner during the prior twelve months;
- iii. it has not, since the last audited statements, failed to pay required dividends or sinking fund installments on preferred stock, or defaulted on debts or material leases; and

⁹⁴ The bid/ask spread analysis reported in Exhibit 10 compares the bid/ask spreads of Apache common stock on each day during the Class Period to those of 100 randomly selected NYSE-listed stocks.

⁹⁵ *Cammer*, 711 F. Supp. at 1284.

iv. it meets certain minimum stock requirements.^{96, 97}

Companies eligible for filing Form S-3 are permitted to incorporate prior filings by reference into current filings, and need not repeat such information since it is already widely publicly available.

51. It is the SEC's view that these Form S-3 eligible companies—those that disclose financial information to the SEC and issue press releases to the public—have already disseminated information to the marketplace, and, therefore, that the market operates efficiently for them.⁹⁸

Certain courts have also stated that the ability to file Form S-3 is an indicator of market efficiency:

Corporations permitted to use the S-3 form are thus presumed to be actively traded and widely followed. *See Harman*, 122 F.R.D. at 525. Therefore, a company's ability to file an S-3 Registration Statement points to market efficiency.⁹⁹

52. Apache filed a Form S-3 during the Class Period, in July 2017, and it filed another Form S-3 shortly after the Class Period, in June 2020.¹⁰⁰ Furthermore, according to Apache's SEC filings before and during the Class Period, the Company met the definition of a "large

⁹⁶ <http://www.sec.gov/about/forms/forms-3.pdf>.

⁹⁷ Prior to January 28, 2008, the SEC required that a minimum of \$75 million in stock be held by non-affiliates. Effective January 28, 2008, a company with a non-affiliate public float of less than \$75 million is permitted to file Form S-3 with certain restrictions. (*See* Securities and Exchange Commission, 17 CFR Parts 230 and 239 [Release No. 33-8878; File No. S7-10-07], RIN 3235-AJ89, Revisions to the Eligibility Requirements for Primary, Securities Offerings on Forms S-3 and F-3.)

⁹⁸ SEC Securities Act Release No. 6331 (August 18, 1981), pp. 5, 6.

⁹⁹ *Krogman*, 202 F.R.D. at 476.

¹⁰⁰ Apache, SEC Form S-3ASR, filed July 19, 2017; Apache, SEC Form S-3ASR, filed June 30, 2020. Source: Edgar Pro (pro.edgar-online.com).

accelerated filer” under Rule 12b-2 of the Exchange Act.¹⁰¹ The SEC’s public float and reporting history requirements for an accelerated filer are virtually identical to the Form S-3 filing requirements.¹⁰² According to the SEC:

The public float and reporting history aspects of [the accelerated filer definition] ... are based primarily on the current eligibility requirements for registration of primary offerings for cash on Form S-3. These companies can take advantage of short-form registration, including the resultant benefits of incorporation by reference and quick access to the capital markets through “shelf registration.” Shortening the periodic reporting deadline for these companies, coupled with our conforming revisions to the financial statement timeliness requirements discussed below, promises that investors will receive information about these companies sooner. This enhances the timeliness of information received for primary purchasers in these offerings in addition to secondary market purchasers. These changes also ensure that investors receive consistent financial information regardless of the particular registration form a company uses. In identifying

¹⁰¹ See Apache, SEC Form 10-K for year-end 2015, filed February 26, 2016; Apache, SEC Form 10-K for year-end 2016, filed February 24, 2017; Apache, SEC Form 10-K for year-end 2017, filed February 23, 2018; Apache, SEC Form 10-K for year-end 2018, filed March 1, 2019; Apache, SEC Form 10-K for year-end 2019, filed February 28, 2020.

¹⁰² Exchange Act reporting companies fall into one of the following categories of filers: (i) large accelerated filers; (ii) accelerated filers; and (iii) non-accelerated filers. The category in which a company falls establishes the deadlines for filing its periodic reports. (See <https://www.sec.gov/divisions/corpfin/cffinancialreportingmanual.pdf>, pp. 38–44.) A company’s filing status is assessed at the end of its fiscal year, and the criteria for becoming an accelerated filer are as follows:

- a. It has been subject to the requirements of Section 13(a) or 15(d) of the Exchange Act for a period of at least 12 calendar months;
- b. It has filed at least one annual report under Section 13(a) or 15(d) of the Exchange Act;
- c. It is not eligible to apply the provisions for Smaller Reporting Companies for its annual and quarterly reports; and
- d. The aggregate worldwide market value of its voting and non-voting common equity held by non-affiliates (“public float”) was at least \$75 million, but less than \$700 million, as of the last business day of its most recently completed second fiscal quarter. (See *id.*, p. 40.)

The above criteria are the same for a large accelerated filer except for criterion (d). A company is considered a large accelerated filer if its public float was at least \$700 million as of the last business day of its most recently completed second fiscal quarter. (See *id.*, p. 41.)

companies that will be subject to this new requirement, we also thought it would be appropriate to use a pre-existing threshold to reduce regulatory complexity.¹⁰³

53. That Apache: (i) met the SEC’s definition of a large, accelerated filer throughout the Class Period; (ii) filed a registration statement on Form S-3 during and shortly after the Class Period; and (iii) adhered to all of the aforementioned Form S-3 requirements imposed by the SEC during the Class Period, supports my conclusion that the market for its stock was efficient during that time.

E. *Cammer* Factor 5: Empirical Facts Showing a Cause-and-Effect Relationship Between Unexpected Corporate Events or Financial Releases and the Price Reaction of Apache Common Stock

54. *Cammer* Factor 5 relates to how a security’s price reacts to new, value-relevant information. The *Cammer* court stated that:

... one of the most convincing ways to demonstrate [market] efficiency would be to illustrate, over time, a cause and effect relationship between the company disclosures and resulting movements in stock price.¹⁰⁴

55. A test of market efficiency is to conduct what is known as an “event study” to examine whether security prices respond to new, value relevant information released to the market. Expert economists commonly use an event study in securities litigation to correlate the disclosure of new, value-relevant information to security price response.¹⁰⁵ Event studies comprise numerous steps, including: (i) the *a priori* definition and selection of events to study; (ii) identification of a study period; (iii) estimation of a regression model to remove non-

¹⁰³ SEC Release 33-8128, Section II.B.3.

¹⁰⁴ *Cammer*, 711 F. Supp. at 1291.

¹⁰⁵ I note that “[c]ourts have rejected the idea that the fifth *Cammer* factor is necessary to establish market efficiency.” *W. Palm Beach Police Pension Fund v. DFC Glob. Corp.*, 2016 WL 4138613, at *12 (E.D. Pa. Aug. 4, 2016); *see also Waggoner*, 875 F.3d at 96-98 (“direct evidence of price impact under *Cammer* 5,” such as an event study, “is not always necessary to establish market efficiency and invoke the *Basic* presumption”).

company-specific effects from the security's return; (iv) testing for statistical significance; and (v) interpretation of empirical results.¹⁰⁶ Academic research acknowledges that some variation in approaches to event studies is permitted.¹⁰⁷

56. I performed an event study for Apache common stock to determine whether new, value-relevant corporate events or financial releases promptly caused a measurable stock price reaction after accounting for contemporaneous market and industry effects. As set forth in Exhibit 12, my event study demonstrates a cause-and-effect relationship between new, value relevant, Company-specific disclosures and movements in Apache's common stock price during the Class Period. The regression analyses used in the event study, from which I have estimated Apache's Company-specific returns (*i.e.*, returns net of market and industry effects), are described in Appendix A and Exhibit 11.¹⁰⁸

¹⁰⁶ As described by Mitchell and Netter (1994):

The execution of an event study is quite simple. It involves the identification of an event that causes investors to change their expectations about the value of a firm. The investigator compares a stock price movement contemporaneous with the event to the expected stock price movement if the event had not taken place. There are three basic steps in conducting an event study: (i) define the event window; (ii) calculate abnormal stock price performance around the event; and (iii) test for statistical significance of the abnormal stock price performance.

(See Mitchell, Mark L. and Jeffry M. Netter, 1994, "The Role of Financial Economics in Securities Fraud Cases: Applications at the Securities and Exchange Commission," *The Business Lawyer*, Vol. 49, pp. 557, 558.)

¹⁰⁷ However, "[w]hile there is no unique structure, the analysis can be viewed as having seven steps." Those steps are event definition, selection criteria, normal and abnormal returns, estimation procedure, testing procedure, empirical results, and interpretation and conclusion. (See Campbell, John Y., Andrew W. Lo, and A. Craig MacKinlay, *The Econometrics of Financial Markets*, Princeton University Press, 1997, pp. 150–152.)

¹⁰⁸ My estimated regression equations appear in Exhibit 11A. Exhibit 11B shows Apache's expected and residual returns estimated from the regression models on each day of the Class Period.

57. To determine which events to include in my analysis, I relied on my knowledge of a large body of event study literature that has evaluated what types of information affect stock prices.¹⁰⁹ Specifically, I examined dates during the Class Period on which Apache released quarterly or year-end financial results and/or financial guidance. Such earnings-related announcements are an objective set of events to examine, which has been shown in the academic finance literature to impact securities' prices.¹¹⁰ My event sample consists of the 14 earnings-related events that occurred during the Class Period (*i.e.*, third-quarter 2016 through fourth-quarter 2019 earnings).¹¹¹ Exhibit 12 describes each of my selected event dates in detail and discusses how the observed Company-specific price reaction in Apache common stock is consistent with that expected in an efficient market.¹¹²

58. Out of the 14 dates I examined, nine (*i.e.*, 64%) are associated with statistically significant Company-specific returns at or above the 95% confidence level (seven are statistically significant negative returns, and two are statistically significant positive returns).¹¹³

¹⁰⁹ See, *e.g.*, Fama, Eugene F., 1991, "Efficient Capital Markets: II," *The Journal of Finance*, Vol. 46, No. 5, pp. 1575–1617.

¹¹⁰ See, *e.g.*, Ball, R., and P. Brown, 1968, "An Empirical Evaluation of Accounting Income Numbers," *Journal of Accounting Research*, pp. 159–78.

¹¹¹ The Class Period (*i.e.*, September 7, 2016 through March 13, 2020, inclusive) is approximately three and a half years. Given that each year contains four calendar quarters, Apache made 14 (= 3.5 x 4) earnings-related announcements during the Class Period.

¹¹² For each event date, Exhibit 12 contains the associated price movement of Apache common stock, both observed and net of market and industry effects, as well the confidence level for each date.

¹¹³ The statistically significant negative impact dates are: November 3, 2016 (third-quarter 2016 earnings); February 23, 2017 (fourth-quarter/full-year 2016 earnings); August 3, 2017 (second-quarter 2017 earnings); February 22, 2018 (fourth-quarter/full-year 2017 earnings); May 3, 2018 (first-quarter 2018 earnings); November 1, 2018 (third-quarter 2018 earnings); and May 2, 2019 (first-quarter 2019 earnings). The statistically significant positive impact dates are: August 1, 2019 (second-quarter 2019 earnings) and February 27, 2020 (fourth-quarter/full-year 2019 earnings).

At the 95% level of confidence, a statistically significant return is expected to occur 5% of the time. Thus, one should expect a random sample of 14 days to contain 0.7 days with a return that is statistically significant at the 95% confidence level. Given that my sample contains more than 12 times as many statistically significant dates as should be expected from a randomly selected 14-day sample (at or above the 95% confidence level), my analysis confirms that Apache's common stock price typically reacted more strongly on event dates than on non-event dates.¹¹⁴

59. Furthermore, although directionality may not be required to show general market efficiency for purposes of a securities class action,¹¹⁵ my review of the news and analysts' reports demonstrates that the direction of the Company-specific returns observed on each event date was consistent with that expected in an efficient market, thereby providing additional evidence of efficiency. Specifically, the event dates on which predominantly *positive* Company-specific news reached the market are associated with statistically significant *positive* returns. The event dates on which predominantly *negative* Company-specific news reached the market are associated with statistically significant *negative* returns. On the event dates associated with a

¹¹⁴ Moreover, statistical tests commonly used to conduct hypothesis tests for differences between proportions observed in categorical data strongly reject the null hypothesis that event dates and non-event dates are equally likely to be associated with statistically significant Company-specific returns (at or above the 95% confidence level). Specifically, both the "two-sample z-test" and "Fisher's exact test" reject the null hypothesis (p -value < 0.001) in favor of the alternative that there exists a higher probability of observing statistically significant Company-specific returns (at or above the 95% confidence level) on event dates during the Class Period. (*See, e.g.,* Agresti, Alan, *An Introduction to Categorical Data Analysis*, John Wiley & Sons, Inc., 2nd Ed., 2007, Ch. 2 Contingency Tables, pp. 21–64.)

¹¹⁵ *See, e.g., In re Petrobras Sec. Litig.*, 862 F.3d 250, 277 (2d Cir. 2017) (stating that district court finding that directionality was not required was "within the range of permissible decisions"); *Wilson v. LSB Indus.*, 2018 U.S. Dist. LEXIS 138832, at *40 (S.D.N.Y. Aug. 13, 2018) (lack of directionality analysis did not impair usefulness of market efficiency report).

statistically insignificant Company-specific return,¹¹⁶ the Company's financial results were generally in line with the market's prior expectations, and/or conveyed a mix of offsetting positive and negative information, such that the insignificant price reaction is consistent with that expected in an efficient market.¹¹⁷ Thus, my event study finds that a strong cause-and-effect relationship existed between the information disclosed on the event dates and resulting stock price movements.

60. Based on the event study performed, I find that Apache's common stock price reflected the information disclosed to the market, and promptly responded to the disclosure of new, unexpected, value relevant information, thereby supporting my conclusion that the market for Apache common stock was efficient throughout the Class Period.

F. Krogman Factor 1: Market Capitalization

61. Courts in the Fifth Circuit and elsewhere have found that a large market capitalization (*i.e.*, the total value of a company's equity) is an indicator of market efficiency because "there is

¹¹⁶ The statistically insignificant impact dates are: May 4, 2017 (first-quarter 2017 earnings); November 2, 2017 (third-quarter 2017 earnings); August 2, 2018 (third-quarter 2018 earnings); February 28, 2019 (fourth-quarter/full-year 2019 earnings); and October 31, 2019 (third-quarter 2019 earnings).

¹¹⁷ For example, on November 2, 2017, before market open, Apache announced its third-quarter 2017 financial results. (*See GlobeNewswire*, "Apache Corporation Releases Third Quarter 2017 Financial and Operational Results," November 2, 2017, 8:00 AM.) While the Company's adjusted EPS was slightly better than consensus, some analysts found that the quarter's "production [was] slightly below [consensus]," and the Company's "3Q results offered few surprises following its early October [2017] update." Thus, the statistically insignificant Company-specific return on November 2, 2017 is consistent with that expected in an efficient market. (*See Exhibit 12*, p. 127, quoting Cowen and Company, "Apache Corporation, 3Q17 Earnings at a Glance," November 2, 2017, and BMO Capital Markets, "Apache, Few Surprises in 3Q Following October Update," November 2, 2017, 8:55 AM.)

a greater incentive for stock purchasers to invest in more highly capitalized corporations.”^{118, 119}

I have discussed above the fact that Apache common stock exhibited a high degree of institutional ownership and the Company was widely followed by analysts. This is consistent with Apache’s sizeable market capitalization. During the Class Period, the Company’s market capitalization ranged from a high of \$25.55 billion in December 2016 to a low of \$2.93 billion in March 2020.¹²⁰

62. By comparison, at the start of the Class Period, the median market capitalization of companies listed on the NYSE was \$2.56 billion, while the median market capitalization of companies listed on the NASDAQ was approximately \$313.43 million. As of September 7, 2016 (*i.e.*, the start of the Class Period), Apache’s market capitalization (\$20.92 billion) was greater than 87.5% and 97.5% of NYSE-listed and NASDAQ-listed stocks, respectively.

Accordingly, Apache’s high market capitalization during the Class Period weighs in favor of a finding of market efficiency.

G. Krogman Factor 2: Bid/Ask Spread

63. The *Krogman* court described bid-ask spreads as “the difference between the price at which investors are willing to buy the stock and the price at which current stockholders are willing to sell their shares,” finding that “a large bid-ask spread is indicative of an inefficient market, because it suggests that the stock is too expensive to trade.”¹²¹ As discussed above in ¶47, the average and median bid/ask spreads on Apache common stock during the Class Period

¹¹⁸ *Krogman*, 202 F.R.D. at 478.

¹¹⁹ “The total market value of a firm’s equity equals the market price per share times the number of shares, referred to as the company’s market capitalization.” (*See* Berk, Jonathan and Peter DeMarzo, *Corporate Finance*, Pearson Education, Inc., 1st ed., 2007, Ch. 2, p. 24.)

¹²⁰ *See* Exhibit 13.

¹²¹ *Krogman*, 202 F.R.D. at 478. *See also*, *Unger*, 401 F.3d 316 at 323.

were smaller than those of randomly sampled stocks listed on the NYSE, thereby supporting my conclusion that Apache common stock traded in an efficient market throughout the Class Period.

H. Krogman Factor 3: Public Float

64. Courts in the Fifth Circuit and elsewhere have also held that a large public float percentage (*i.e.*, the percentage of a security outstanding held by the public rather than insiders) may be an indicator of market efficiency.¹²² During the Class Period, there was an average of approximately 379.3 million Apache shares outstanding, while insiders held approximately 0.93 million of those shares. Accordingly, the public float of Apache common stock was, on average, 99.8% of shares outstanding during the Class Period. In comparison, Ding, Ni, and Zhong (2016) estimate that the average public float of stocks listed in the United States from 2003 to 2011 was 91.7%.¹²³ Moreover, on a dollar basis, the public float of Apache common stock ranged from a high of \$25.24 billion in December 2016, to a low of \$3.04 billion in March 2020.¹²⁴ The fact that Apache had a large public float percentage further supports my conclusion that the Company's common stock traded in an efficient market throughout the Class Period.

VII. Damages Can Be Measured on a Class-Wide Basis and in a Manner Consistent with Lead Plaintiffs' Theory of Liability

65. I have not, as of yet, been asked to provide an opinion on loss causation or to calculate Class-wide damages in this matter. I have been asked, however, to opine on whether damages under Section 10(b) can be calculated on a Class-wide basis for all purchases and/or acquisitions

¹²² *Unger*, 401 F.3d at 323; *Bell*, 422 F.3d at 313 n.10; *Krogman*, 202 F.R.D. at 478.

¹²³ Ding, Xiaoya (Sara), Yang Ni, and Ligang Zhong, 2016, "Free float and market liquidity around the world," *Journal of Empirical Finance*, Vol. 38, pp. 236–257 ("Ding, Ni, and Zhong (2016)") at p. 242.

¹²⁴ See Exhibit 14, containing Apache's mid-month and end-of-month public float during the Class Period.

of Apache common stock during the Class Period in a manner consistent with Lead Plaintiffs' theory of liability. In what follows, I set forth the general economic framework for quantifying per-security damages on a Class-wide basis in this case, which reflects methodologies I would propose to use if asked to calculate damages in this matter. Although damages, if any, for each individual Class member may vary, the methodologies for calculating damages described below would be commonly applicable to each Class member in this matter.

66. I understand that in this litigation, Lead Plaintiffs have alleged that investors in Apache common stock during the Class Period incurred damages by purchasing or acquiring their shares at prices that were inflated as a result of the alleged false or misleading statements or omissions concerning Alpine High, and that such artificial inflation was removed from Apache's common stock price upon the issuance of corrective disclosures that caused the price of that security to decline.¹²⁵ Damages are routinely calculated on a class-wide basis in securities cases alleging artificial price inflation.¹²⁶ Price inflation in a security can be created by material misrepresentations and/or omissions on or before the date of purchase, which remain uncorrected in whole or in part at the time of purchase. Material misrepresentations and/or omissions may also "prevent[] preexisting inflation in a stock price from dissipating," thereby "caus[ing]

¹²⁵ Complaint, ¶¶301, 303. *See also id.* at ¶319 ("The economic loss, i.e., damages, suffered by Lead Plaintiffs and other Class members directly resulted from Defendants' materially false or misleading statements, which created or maintained artificial inflation in the price of Apache common stock. When the truth was revealed in the disclosures made on October 9, 2017, February 22, 2018, April 23, 2019, October 25, 2019, and March 16, 2020, the price of Apache common [stock] declined substantially as the market absorbed this information, causing Lead Plaintiffs and other Class members to suffer economic losses.").

¹²⁶ *See, e.g.,* Gold, Kevin L., Eric Korman and Ahmer Nabi, "Federal Securities Acts and Areas of Expert Analysis," *Litigation Services Handbook, The Role of the Financial Expert*, 6th ed., Ed. Roman L. Weil, Daniel G. Lentz, and Elizabeth A. Evans, John Wiley & Sons, Inc., 2017, Ch. 27, pp. 12–17.

inflation not simply by *adding* it to a stock, but by maintaining it.”¹²⁷ Damages for purchases during the Class Period may be mitigated if the security is sold before the price inflation is fully dissipated, given that the investor receives the benefit of any inflation remaining at the date of sale.¹²⁸

67. Price inflation may be measured on a Class-wide basis by analyzing the change in a security’s price caused by one or more corrective disclosures.¹²⁹ The decline in a security’s price in response to such events reflects the dissipation of price inflation created by earlier misrepresentations and/or omissions. An event study can be used to isolate Company-specific price movements caused by the revelation of true facts related to the alleged fraud from price movements caused by other factors. Other factors can include changes in market and industry conditions or the dissemination of value-relevant, non-fraud-related, Company-specific information. This event study analysis applies to all Class members, regardless of the extent to which the price movement is due to the alleged corrective disclosures. After isolating the price impact of the alleged misstatements and omissions, one can estimate the price inflation due to the

¹²⁷ *In re Vivendi, S.A. Sec. Litig.*, 838 F.3d 223, 258 (2d Cir. 2016). Courts have further explained that “[t]here is no reason to draw any legal distinction between fraudulent statements that wrongfully prolong the presence of inflation in a stock price and fraudulent statements that initially introduce that inflation.” *Arkansas Teacher Ret. Sys. v. Goldman Sachs Grp., Inc.*, --- F.3d---, 2020 WL 1682772, at *10 (2d Cir. Apr. 7, 2020) (quoting *In re Vivendi, S.A. Sec. Litig.*, 838 F.3d at 259).

¹²⁸ This general economic framework for calculating recoverable damages for a class of shareholders is often referred to as the “out-of-pocket measure of damages.” (*Supra* note 126.)

¹²⁹ *Supra* note 126.

alleged fraud for each day during the Class Period, and on a Class-wide basis for each member of the Class.^{130, 131}

68. Once the daily levels of price inflation have been calculated throughout the Class Period, a Class member's actual trading activity in the security can be used to mechanically calculate damages on an individual basis. For each Class member, damages incurred on a security acquired during the Class Period and retained through the end of the Class Period are equal to the

¹³⁰ "Price impact can be shown either by an increase in price following a fraudulent public statement or a decrease in price following a revelation of the fraud." *Erica P. John Fund, Inc. v. Halliburton Co.*, 718 F.3d 423, 434 (5th Cir. 2013), *vacated and remanded on other grounds*, *Halliburton II*, 134 S. Ct. 2398 (U.S. 2014).

¹³¹ *In re Pfizer, Inc. Sec. Litig.*, 819 F.3d 642, 649 (2d Cir. 2016) (internal citations omitted, emphasis in original):

Performing an event study can thus help an expert to determine at least two things. First, assuming that the defendant company fraudulently concealed information, the event study shows how much money the fraud caused shareholders to lose. Identifying residual returns on days when allegedly concealed information reached the market indicates that the supposedly withheld information caused the company's stock price to change. If the release of allegedly withheld information causes a stock price decrease, shareholders who purchased the defendant company's stock after the alleged fraud but before the revelation may have paid a higher price than they would have but for the defendant's fraudulent conduct — known as an "artificial[ly] inflat[ed]" price.

Second, the event study helps the expert "calculat[e] what the price of [the defendant company's] security would have been had the alleged wrongful conduct not occurred," by estimating the amount of artificial inflation in the company's stock price over time. Just as the existence of a residual return on a day when the market discovers allegedly concealed information shows that the company's stock price was artificially inflated, the *size* of the residual return on such a day provides evidence of the *amount* by which concealing that particular information inflated the defendant company's stock. As a result, if concealed information reached the market through multiple corrective disclosures, the sum of the residual returns associated with those disclosures provides evidence about the amount of artificial inflation in the company's stock after the fraud but before those corrections. Thus, an expert using an event study can estimate the amount of artificial inflation in the defendant company's stock price when shareholders purchased their shares, which is equivalent to estimating the difference between what those investors should have paid for the shares but-for the alleged fraud, and what they actually paid.

amount of inflation at purchase. For a security acquired during the Class Period and sold prior to the end of the Class Period, damages are the price inflation at purchase minus the price inflation at sale. Given my understanding of the Supreme Court’s ruling in *Dura*,¹³² a security purchased during the Class Period and sold before the first corrective disclosure is ineligible for damages. Similarly, a security that is both purchased and sold between two consecutive disclosures of corrective information is ineligible for damages.

69. Finally, per-security damages should also incorporate the so-called “90-day lookback” provision of the Private Securities Litigation Reform Act of 1995,¹³³ which also can be applied on a Class-wide basis. This provision applies such that losses on securities purchased during the Class Period and held as of the close of the 90-day period subsequent to the Class Period (the “90-Day Lookback Period”) cannot exceed the difference between the purchase price paid for the security and the average price of the security during the 90-Day Lookback Period. Losses on securities purchased during the Class Period and sold during the 90-Day Lookback Period cannot exceed the difference between the purchase price paid for the security and the rolling average price of the security during the portion of the 90-Day Lookback Period elapsed as of the date of sale. Section 10(b) damages incurred by purchasers of Apache common stock during the Class Period can be calculated on a Class-wide basis in this manner.

VIII. Conclusion

70. In summary, the market for Apache common stock was efficient throughout the Class Period. In addition, damages can be calculated for investors who purchased or otherwise


¹³² *Dura Pharms., Inc. v. Broudo*, 544 U.S. 336 (2005) (“*Dura*”).

¹³³ 15 U.S.C. § 78u-4(e).

acquired Apache common stock during the Class Period using a method that is common to the Class and in a manner consistent with Lead Plaintiffs' theory of liability.

71. My work in this matter is ongoing. My opinions in this Report are subject to refinement or revision based on analysis of new information which may be provided to me, including the opinions of other experts, receipt of additional documents and data, and based on further analysis of the data and materials described herein. I understand that discovery is ongoing. Should additional relevant information be provided to me, my opinions may be supplemented at a later date.

Executed on April 7, 2023, at Redwood City, California.



Zachary Nye, Ph.D.

Appendix A: Description of Regression Analyses

72. For the purpose of examining market efficiency, I have conducted an event study to determine whether new, value-relevant, Company-specific information promptly caused a measurable stock price reaction after accounting for contemporaneous market and industry effects. In an effort to isolate Company-specific effects that influenced Apache's stock price during the Class Period, I performed regression analyses to measure the relationship between Apache common stock returns and 1) changes in market-wide factors that would be expected to impact all stocks; and 2) changes in industry-wide factors that would be expected to impact stocks in the "Exploration & Production" industry. By measuring how Apache common stock returns move in relation to an overall market index and an industry index, I can also measure how it responds to Company-specific news.

73. For each event date prior to and including March 13, 2020 (*i.e.*, the end of the Class Period), the "Control Period" used to estimate the regression equation is the calendar year immediately preceding the impact date (*i.e.*, the first trading day on which the information

disclosed could have impacted the market price).^{134, 135} To be consistent with the academic literature, each of my Control Periods excludes the events under study.^{136, 137}

74. The market index used is the S&P 500, which “includes 500 leading companies and captures approximately 80% coverage of available market capitalization.”¹³⁸ This broad-based market index is commonly used by economists as a representation of the overall market, which is theoretically required by the Capital Asset Pricing Model (“CAPM”), for which famed financial economist, William Sharpe, won a Nobel Prize.¹³⁹

¹³⁴ Mitchell, Mark L. and Jeffry M. Netter, 1994, “The Role of Financial Economics in Securities Fraud Cases: Applications at the Securities and Exchange Commission,” *The Business Lawyer*, Vol. 49, pp. 545–90 at p. 568:

The market model is estimated with regression analysis. The estimation period for this market model equation typically ranges from 100 to 300 trading days preceding the event under study.

¹³⁵ MacKinlay, A. Craig, 1997, “Event Studies in Economics and Finance,” *Journal of Economic Literature*, Vol. 35, pp. 13–39 at p. 15:

Given the selection of a normal performance model, the estimation window needs to be defined. The most common choice, when feasible, is using the period prior to the event window for the estimation window. For example, in an event study using daily data and the market model, the market model parameters could be estimated over the 120 days prior to the event. Generally the event period itself is not included in the estimation period to prevent the event from influencing the normal performance model parameter estimates.

¹³⁶ See Exhibit 12 for a list of all the events under study.

¹³⁷ See, e.g., MacKinlay, A. Craig, 1997, “Event Studies in Economics and Finance,” *Journal of Economic Literature*, Vol. 35, pp. 13–39 at p. 15; and Campbell, John Y., Andrew W. Lo, and A. Craig MacKinlay, *The Econometrics of Financial Markets*, Princeton University Press, 1997, p. 152.

¹³⁸ <http://www.spindices.com/indices/equity/sp-500>.

¹³⁹ The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 1990, Press Release, http://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/1990/press.html:

An important result is that the expected return on an asset is determined by the beta coefficient on the asset, which also measures the covariance between the return on the asset and the return on the market portfolio. ... The CAPM is considered the backbone of modern price theory for financial markets. It is also

75. In addition to market-wide factors, my regression analyses also measure the relationship between Apache common stock returns and changes in industry-wide factors that would be expected to impact all stocks in Apache's particular industry. In constructing the industry index, I considered: (i) companies identified as industry competitors in analyst reports published during the Class Period; (ii) companies identified by the Bloomberg Industry Classification System (BICS) as operating in the "Exploration & Production" industry; and (iii) companies identified as peers in Apache's SEC filings issued during the Class Period. The industry index used in this analysis is the S&P 500 Oil & Gas Exploration and Production Index, excluding Apache.¹⁴⁰

76. My estimated regression equations appear in Exhibit 11A. As indicated by the *t*-statistics corresponding to each index, Apache common stock returns exhibited a statistically significant association with both market index returns and residual industry index returns during the Class Period.¹⁴¹ Exhibit 11B shows Apache's expected (*i.e.*, "predicted") and residual (*i.e.*, "Company-specific") returns estimated from the regression models on each day of the Class Period. Expected returns are those changes in stock prices due to market and industry factors that change the values of all stocks in an economy (market effects) or in a particular industry (industry effects). Apache's residual returns are a measure of the change in the stock price due

widely used in empirical analysis, so that the abundance of financial statistical data can be utilized systematically and efficiently. ... Along with Markowitz' portfolio model, the CAPM has also become the framework in textbooks on financial economics throughout the world.

¹⁴⁰ Bloomberg ticker symbol "S5OILP Index."

¹⁴¹ Residual industry index returns are the portions of daily returns on the industry index which are not explained by market effects, as determined from a regression of industry index returns on market index returns during the Control Period. The use of residual industry index returns rather than raw returns eliminates any statistical problems due to multicollinearity. (*See* Greene, William H., *Econometric Analysis*, Prentice Hall, 2012, 7th ed., Ch. 4, p. 89.)

to Company-specific events and are calculated as the difference between Apache's actual return and its expected return.¹⁴²

¹⁴² Exhibit 11B also provides the confidence level for each day of the Class Period, which measures the statistical significance of Apache's residual returns. The confidence level associated with a given Company-specific return is measured as one minus the " p -value" of that return, where the p -value represents the conditional probability of observing a Company-specific return. Thus, consistent with the standard frequently employed by social scientists, statistical significance in the context of securities litigation merely indicates that a given company-specific return is a relatively rare occurrence. (See Kaye, David H. and David A. Freedman, "Reference Guide on Statistics," in Federal Judicial Center, *Reference Manual on Scientific Evidence*, National Academies Press, 2011, 3rd ed., pp. 250–252: "Statistical significance is determined by comparing a p [*i.e.*, the probability of getting data as extreme as, or more extreme than, the actual data—given that the null hypothesis is true] to a preset value, called the significance level." Thus, statistical significance "is merely a label for a certain kind of p -value.")



702 MARSHALL STREET, SUITE 200
REDWOOD CITY, CA 94063
650.298.0200
WWW.SCGINC.COM

Zachary R. Nye

Email: zach@scginc.com

Education

Ph.D. – University of California, Irvine

Finance

2009

Irvine, California

- Dissertation: Macro-Augmented Volatility Forecasting.
- Research Interests: Market efficiency of underlying and derivative securities, volatility forecasting, risk management, financial econometrics, valuation and corporate finance.
- Teaching Experience: Corporate Finance, Investments, and Risk Management.

M.Sc. – London Business School

Finance

2004

London, England

- Earned distinction for Masters Thesis on the informational efficiency of credit-linked notes.

A.B. – Princeton University

Economics

2001

Princeton, New Jersey

Employment History

Vice President

Stanford Consulting Group, Inc.

Summer 2015 – present
Redwood City, California

The Stanford Consulting Group, Inc. provides economic research and expert testimony for business litigation, as well as regulatory and legislative proceedings.

Responsibilities include:

- quantifying economic damages (e.g., present value of expected future earnings, price inflation, lost profits, unjust enrichment, reasonable royalties);
- enterprise, project, equity, debt, derivative-security and intellectual-property valuation;
- assessing the informational efficiency of financial securities;
- analyzing fairness opinions related to corporate mergers and acquisitions;
- econometric modeling and analysis;
- marginal cost analysis;
- preparing expert reports and declarations;
- providing deposition and trial testimony; and
- supporting counsel in preparation for cross examination of opposing experts.

Senior Consultant

Stanford Consulting Group, Inc.

Summer 2009 – Summer 2015
Redwood City, California

Associate
Stanford Consulting Group, Inc.

Summer 2004 – Summer 2005
Redwood City, California

Mortgage Consultant
Woolwich PLC

Fall 2002 – Summer 2003
Oxford, UK

Trading Desk Specialist
Merrill Lynch, Defined Asset Funds

Fall 2001 – Summer 2002
Plainsboro, New Jersey

Academic Research

Nye, Zachary and Mark Washburn, 2013, “Macro-Augmented Volatility Forecasting,” *Western Decision Sciences Institute Proceedings*. Paper presented at the WDSI Annual Meeting, Long Beach, California, March 27, 2013. Winner of the 2013 Best Theoretical/Empirical Research Paper Awards.

Nye, Zachary and Philippe Jorion, 2009, “Macro-Augmented Volatility Forecasting,” Working Paper, University of California at Irvine.

Nye, Zachary and Timothy C. Johnson, 2005, “Market Efficiency's Hidden Teeth: An Unambiguous Test for Derivative Securities,” Working Paper, London Business School.

Testimony

John V. Ferris, et al. v. Wynn Resorts Limited, et al., United States District Court, District of Nevada, Case No. 2:18-cv-00479-GMN-DJA

Deposition	August 26, 2022
Deposition	January 31, 2023

In re Jernigan Capital, Inc. Securities Litigation, United States District Court, Southern District of New York, Case No. 1:20-cv-09575-JLR

Deposition	January 27, 2023
------------	------------------

Halman Aldubi Provident and Pension Funds Ltd., et al. v. Teva Pharmaceuticals Industries Limited, et al., United States District Court, Eastern District of Pennsylvania, Case No. 2:20-cv-04660-KSM

Deposition	November 4, 2022
------------	------------------

Ali Karimi, et al. v. Deutsche Bank AG, et al., United States District Court, Southern District of New York, Case No. 1:22-cv-02854-JSR

Deposition	August 12, 2022
------------	-----------------

Teresa Doscocz, et al. v. ALS Lien Services, et al., Superior Court of California, County of Contra Costa, Case No. C17-01486

Deposition	April 23, 2018
Deposition	March 8, 2022
Deposition	April 14, 2022
Trial	April 29, 2022

Paul Hayden, et al. v. Portola Pharmaceuticals, Inc., et al., United States District Court, Northern District of California, Case No. 3:20-cv-00367-VC

Deposition	March 30, 2022
------------	----------------

United States of America ex rel. Lori Morsell, et al. v. Symantec Corporation, United States District Court for the District of Columbia, Civil Action No. 12-cv-0800 (RC)

Deposition	March 13, 2019
Trial	March 22, 2022

United States of America ex rel. Tiffany Montrieff, et al. v. Peripheral Vascular Associates, P.A., United States District Court for the Western District of Texas, San Antonio Division, Civil Action No. SA-17-CV-00317-XR

Deposition	July 31, 2020
Trial	February 14, 2022

In re Advance Auto Parts, Inc. Securities Litigation, United States District Court, District of Delaware, Case No. 1:18-CV-00212-RGA

Deposition	July 14, 2020
Deposition	September 30, 2021

In re Allergan PLC Securities Litigation, United States District Court, Southern District of New York, Civil Action No. 18-CV-12089-CM

Deposition	May 19, 2020
Deposition	September 27, 2021

Gabby Klein, et al. v. Altria Group, Inc., et al., United States District Court, Eastern District of Virginia, Richmond Division, Case No. 3:20-cv-00075-DJN

Deposition	August 31, 2021
------------	-----------------

In re Tahoe Resources, Inc. Securities Litigation, United States District Court, District of Nevada, Case No. 2:17-cv-01868-RFB-NJK

Deposition	August 4, 2021
------------	----------------

Hawaii Structural Ironworkers Pension Trust Fund, et al. v. AMC Entertainment Holdings, Inc., et al., United States District Court, Southern District of New York, Case 1:18-cv-00299-AJN-SLC

Deposition	July 9, 2020
Deposition	July 28, 2021

In re Mylan N.V. Securities Litigation, United States District Court, Southern District of New York, Case No. 1:16-CV-07926 (JPO)

Deposition	November 22, 2019
Deposition	July 20, 2021

Oregon Laborers Employers Pension Trust Fund, et al. v. Maxar Technologies Inc., et al., United States District Court, District of Colorado, Case No. 1:19-cv-00124-WJM-SKC

Deposition	May 28, 2021
------------	--------------

Roei Azar, et al. v. Yelp, Inc., et al., United States District Court, Northern District of California, Case No. 3:18-cv-00400-EMC

Deposition	March 2, 2021
------------	---------------

Roofers' Pension Fund, et al. v. Joseph C. Papa, et al., United States District Court, District of New Jersey, Civil Action No. 2:16-cv-02805-MCA-LDW

Deposition	April 2, 2019
Deposition	January 14, 2021

Utah Retirement Systems, et al. v. Healthcare Services Group, Inc., et al., United States District Court, Eastern District of Pennsylvania, Case No. 2:19-cv-01227-ER

Deposition	December 10, 2020
------------	-------------------

Matt Karinski, et al. v. Stamps.com, Inc., et al., United States District Court, Central District of California, Case No. 2:19-cv-01828-MWF-SK

Deposition August 14, 2020

Alexandre Pelletier, et al. v. Endo International PLC, et al., United States District Court, Eastern District of New Pennsylvania, Civil Action No. 2:17-cv-05114-MMB

Deposition July 27, 2020

In re Zillow Group, Inc. Securities Litigation, United States District Court, Western District of Washington at Seattle, Case No. 2:17-cv-01387-JCC

Deposition March 10, 2020

Joseph Prause, et al. v. TechnipFMC plc, et al., United States District Court, Southern District of Texas, Houston Division, Case No. 4:17-cv-02368

Deposition February 5, 2020

Deposition March 9, 2020

In re Quorum Health Securities Litigation, United States District Court, Middle District of Tennessee, Case No. 3:16-cv-02475

Deposition August 17, 2018

Deposition January 14, 2020

In re Snap Inc. Securities Litigation, United States District Court, Central District of California, Western Division, Case No. 2:17-cv-03679-SVW-AGR

Deposition December 13, 2019

Jet Capital Master Fund, L.P., et al. v. American Realty Capital Properties, Inc., et al., United States District Court, Southern District of New York, Case No. 1:15-cv-00307-AKH

Deposition July 26, 2019

City of Pontiac General Employees' Retirement System, et al. v. Dell Inc., et al., United States District Court, Western District of Texas, Austin Division, Case No. 1:15-cv-00374-LY

Deposition April 19, 2017

Deposition November 6, 2018

Pirnik v. Fiat Chrysler Automobiles N.V., et al., United States District Court, Southern District of New York, Case No. 1:15-CV-07199-JMF

Deposition February 2, 2018

Deposition September 13, 2018

Bradley Cooper, et al. v. Thoratec Corporation, et al., United States District Court, Northern District of California, Oakland Division, Case No. 4:14-cv-00360-CW

Deposition March 6, 2018

L-3 Communications Corporation, et al. v. Serco, Inc., United States District Court for the Eastern District of Virginia, Case No. 1:15-cv-701-GBL-JFA

Deposition October 22, 2015

Deposition October 18, 2017

In re Juno Therapeutics, Inc., United States District Court of Western District of Washington at Seattle, Case No. C16-1069RSM

Deposition October 4, 2017

Brad Mauss, et al. v. NuVasive, Inc., et al., United States District Court, Southern District of California, Case No.: 13-cv-02005-JM

Deposition December 20, 2016

Deposition August 28, 2017

In re Akorn, Inc. Securities Litigation, United States District Court, Northern District of Illinois, Eastern Division,
Case No. 15-CV-01944

Deposition June 21, 2017

In re Ocwen Financial Corporation Securities Litigation, United States District Court, Southern District of Florida,
Case 14-81057-CIV-WPD

Deposition September 23, 2016

Deposition March 28, 2017

Stephen Calfo, et al. v. John P. Messina, Sr., et al., United States District Court, Southern District of New York,
Civil Action No. 15 Civ. 04010 (LGS)

Deposition January 5, 2017

In re EZCORP, Inc. Securities Litigation, United States District Court, Southern District of New York, Case No. 14-
cv-6834 (ALC)

Deposition October 14, 2016

Arthur Menaldi, et al. v. Och-Ziff Capital Management Group LLC, et al., United States District Court, Southern
District of New York, No. 14-CV-03251-JPO

Deposition October 3, 2016

Keith Thomas, et al. v. MagnaChip Semiconductor Corp., et al., United States District Court, Northern District of
California, Case No. 3:14-cv-01160-JST

Deposition September 16, 2016

In re Rocket Fuel, Inc. Securities Litigation, United States District Court, Northern District of California, Oakland
Division, Case No. 4:14-cv-03998-PJH

Deposition September 14, 2016

Barbara Strougo, Individually and on Behalf of All Others Similarly Situated v. Barclays PLC, et al., United States
District Court, Southern District of New York, Case No. 14-cv-5797 (SAS)

Deposition August 11, 2015

Evidentiary Hearing November 5, 2015

Deposition June 16, 2016

In re Merck & Co., Inc. Securities, Derivative & "ERISA" Litigation, United States District Court, District of New
Jersey, Case Numbers: 05-cv-5060; 07-cv-4021; 07-cv-4022; 07-cv-4023; 07-cv-4024; 07-cv-4546; 11-cv-6259; and
15-cv-518

Deposition December 6, 2013

Deposition October 1, 2015

Richard Thorpe and Darrel Weisheit, Individually and on Behalf of All Others Similarly Situated v. Walter
Investment Management Corp., et al., United States District Court, Southern District of Florida,
Case No. 1:14-cv-20880-UU

Deposition September 16, 2015

City of Austin Police Retirement System, *Individually and on Behalf of All Others Similarly Situated* v. Kinross
Gold Corporation, et al., United States District Court, Southern District of New York,
Civil Action No. 1:12-cv-01203-VEC-KNF

Deposition November 19, 2014

In re El Paso Partners, L.P. Derivative Litigation, Court of Chancery of the State of Delaware, C.A. No. 7141-CS

Deposition September 24, 2013

Trial November 12 and 13, 2014

L-3 Communications Corporation, et al. v. Jaxon Engineering & Maintenance, Inc., et al., United States District Court for the District of Colorado, Civil Action No. 10-cv-02868-MSK-KMT

Deposition August 7, 2014

Axa Corporate Solutions Assurance, et al. v. Honeywell International, Inc., et al., Superior Court of the State of Arizona in and for the County of Maricopa, No. CV2011-019334

Deposition February 24, 2014

In re Heckmann Corporation Securities Litigation, United States District Court for the District of Delaware, Case No. 1:10-cv-00378-LPS-MPT

Deposition November 9, 2012

Exhibit 2**Apache Corporation****Document List***From Counsel*

Material	Document Date
Class Action Complaint	2/23/2021
Consolidated Class Action Complaint for Violations of the Federal Securities Laws	12/17/2021
Memorandum and Recommendation	9/15/2022
Order Adopting Magistrate Judge's Memorandum and Recommendation	11/29/2022

Obtained by Stanford Consulting Group, Inc.

Material	Document Date	Source
Academic journal articles, reference materials (e.g., books, web sites, and news articles), and court filings	Various	See footnotes to Nye Report
Analyst reports	9/2016 - 3/2020	Refinitiv Eikon
Analyst ratings and price target data	9/2016 - 3/2020	Bloomberg
SEC filings for Apache	9/2016 - 3/2020	Edgar Pro
News articles and conference call transcripts for Apache	9/2016 - 3/2020	Factiva; Bloomberg; Internet
Daily closing bid & ask prices for Apache stock and for sample companies on the NYSE	9/2016 - 3/2020	Bloomberg
Total returns & market capitalization for comparables and/or competitors of Apache	9/2015 - 6/2020	Bloomberg
Price, volume, dividend, shares outstanding data for Apache	9/2015 - 6/2020	Bloomberg
Quarterly institutional and insider holdings data for Apache	Q2-16 - Q1-20	Refinitiv Eikon
Daily index levels for S&P 500 Index	9/2015 - 6/2020	Bloomberg
Short interest data for Apache	9/2016 - 3/2020	Bloomberg
U.S. market short interest as a percentage of float data	9/2016 - 3/2020	Bloomberg
NASDAQ market maker activity data for Apache	9/2016 - 3/2020	Bloomberg
Market capitalization data for NYSE and NASDAQ listed companies	9/2016 - 3/2020	Bloomberg

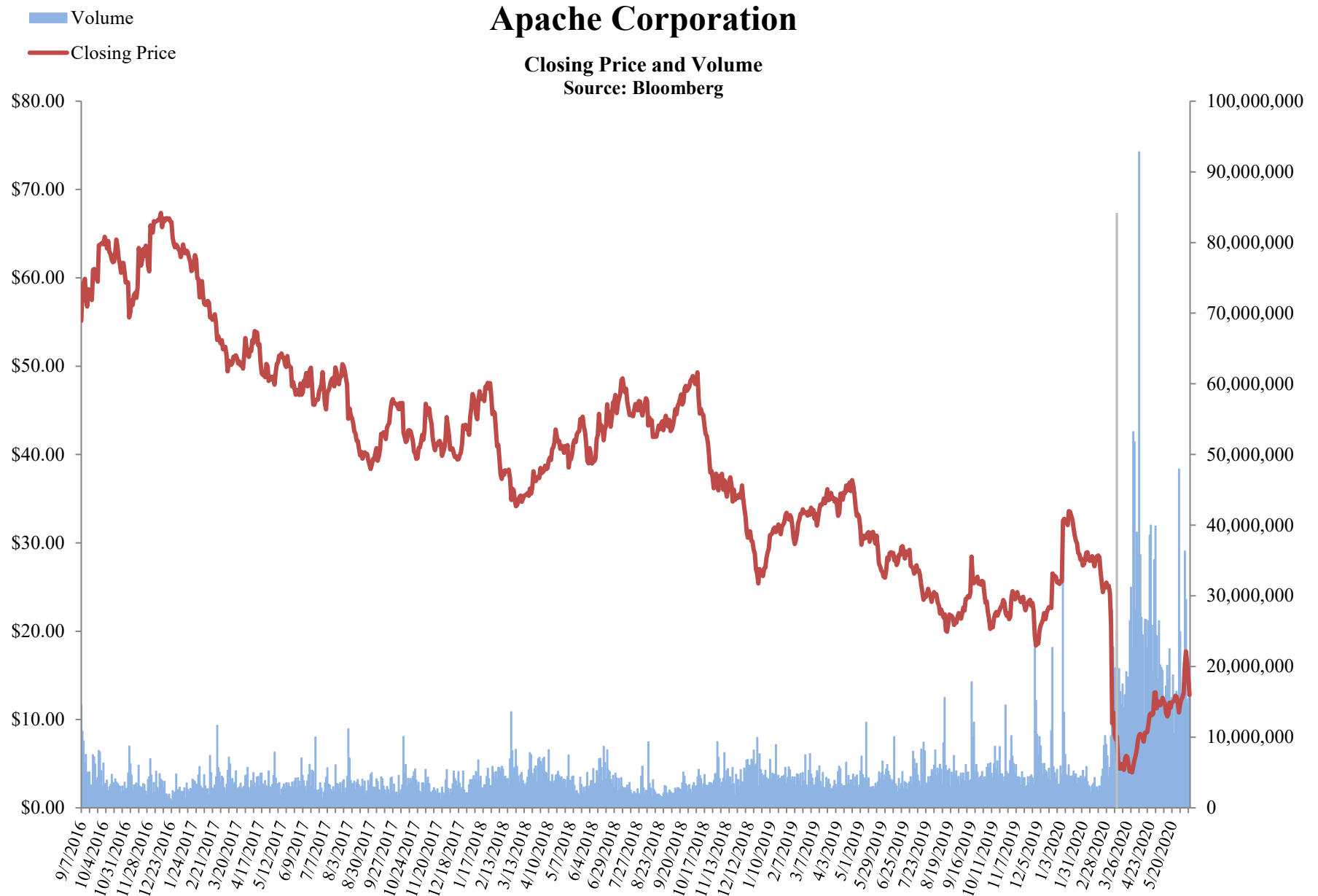
Exhibit 3A

Exhibit 3B**Apache Corporation****Closing Price and Volume**

Source: Bloomberg

Date	Volume	Closing Price	Price Change
9/7/2016	14,583,568	\$55.13	\$3.46
9/8/2016	10,856,939	\$59.05	\$3.92
9/9/2016	9,468,778	\$59.40	\$0.35
9/12/2016	6,267,853	\$59.90	\$0.50
9/13/2016	7,544,599	\$57.51	-\$2.39
9/14/2016	5,045,256	\$56.75	-\$0.76
9/15/2016	4,960,317	\$58.70	\$1.95
9/16/2016	5,097,992	\$58.56	-\$0.14
9/19/2016	3,261,981	\$57.85	-\$0.71
9/20/2016	3,003,063	\$57.49	-\$0.36
9/21/2016	7,520,898	\$60.89	\$3.40
9/22/2016	7,239,837	\$61.00	\$0.11
9/23/2016	6,190,895	\$60.02	-\$0.98
9/26/2016	3,945,899	\$59.94	-\$0.08
9/27/2016	4,282,437	\$59.59	-\$0.35
9/28/2016	8,110,999	\$63.70	\$4.11
9/29/2016	7,894,833	\$63.74	\$0.04
9/30/2016	5,292,485	\$63.87	\$0.13
10/3/2016	2,899,987	\$63.95	\$0.08
10/4/2016	6,326,980	\$63.79	-\$0.16
10/5/2016	3,451,217	\$64.65	\$0.86
10/6/2016	3,369,492	\$64.09	-\$0.56
10/7/2016	3,922,773	\$63.33	-\$0.76
10/10/2016	2,357,116	\$64.16	\$0.83
10/11/2016	2,971,356	\$62.87	-\$1.29
10/12/2016	3,325,818	\$62.71	-\$0.16
10/13/2016	4,738,727	\$62.07	-\$0.64
10/14/2016	3,580,306	\$61.77	-\$0.30
10/17/2016	3,512,024	\$61.85	\$0.08
10/18/2016	4,125,723	\$62.83	\$0.98
10/19/2016	3,624,739	\$64.32	\$1.49
10/20/2016	3,449,160	\$63.48	-\$0.84
10/21/2016	3,176,498	\$62.19	-\$1.29
10/24/2016	3,019,002	\$61.58	-\$0.61
10/25/2016	2,163,457	\$60.57	-\$1.01
10/26/2016	3,093,697	\$61.68	\$1.11
10/27/2016	2,405,243	\$61.70	\$0.02
10/28/2016	3,640,812	\$60.72	-\$0.98
10/31/2016	2,590,945	\$59.48	-\$1.24
11/1/2016	2,778,762	\$59.53	\$0.05
11/2/2016	4,963,101	\$59.46	-\$0.07
11/3/2016	8,755,974	\$55.52	-\$3.94
11/4/2016	6,235,546	\$56.14	\$0.62
11/7/2016	4,614,505	\$57.45	\$1.31
11/8/2016	2,338,623	\$56.93	-\$0.52
11/9/2016	3,270,482	\$58.02	\$1.09
11/10/2016	3,272,272	\$58.32	\$0.30
11/11/2016	3,518,077	\$57.72	-\$0.60
11/14/2016	2,993,417	\$58.93	\$1.21

Exhibit 3B**Apache Corporation****Closing Price and Volume**

Source: Bloomberg

Date	Volume	Closing Price	Price Change
11/15/2016	6,053,676	\$63.39	\$4.46
11/16/2016	2,995,183	\$62.45	-\$0.94
11/17/2016	2,974,241	\$61.40	-\$1.05
11/18/2016	2,753,635	\$62.08	\$0.68
11/21/2016	3,446,243	\$63.27	\$1.19
11/22/2016	3,304,613	\$62.47	-\$0.80
11/23/2016	2,339,919	\$63.65	\$1.18
11/25/2016	1,831,983	\$62.84	-\$0.81
11/28/2016	4,022,125	\$61.35	-\$1.49
11/29/2016	4,391,339	\$60.74	-\$0.61
11/30/2016	6,955,994	\$65.95	\$5.21
12/1/2016	4,643,623	\$65.14	-\$0.81
12/2/2016	2,072,971	\$65.11	-\$0.03
12/5/2016	3,595,636	\$66.41	\$1.30
12/6/2016	2,148,338	\$66.35	-\$0.06
12/7/2016	5,181,765	\$66.39	\$0.04
12/8/2016	2,862,583	\$66.50	\$0.11
12/9/2016	2,411,886	\$66.56	\$0.06
12/12/2016	4,865,582	\$66.79	\$0.23
12/13/2016	4,030,310	\$67.35	\$0.56
12/14/2016	3,834,158	\$65.74	-\$1.61
12/15/2016	2,757,765	\$66.74	\$1.00
12/16/2016	3,759,629	\$66.39	-\$0.35
12/19/2016	1,971,319	\$66.70	\$0.31
12/20/2016	1,950,729	\$66.75	\$0.05
12/21/2016	1,573,302	\$66.64	-\$0.11
12/22/2016	1,932,958	\$66.74	\$0.10
12/23/2016	1,288,753	\$66.40	-\$0.34
12/27/2016	1,021,755	\$66.34	-\$0.06
12/28/2016	2,425,048	\$64.59	-\$1.75
12/29/2016	1,735,026	\$63.87	-\$0.72
12/30/2016	2,238,291	\$63.47	-\$0.40
1/3/2017	4,816,806	\$63.78	\$0.31
1/4/2017	2,620,101	\$63.59	-\$0.19
1/5/2017	2,531,935	\$63.25	-\$0.34
1/6/2017	2,936,702	\$63.12	-\$0.13
1/9/2017	2,334,827	\$62.36	-\$0.76
1/10/2017	2,382,181	\$62.87	\$0.51
1/11/2017	2,270,522	\$63.77	\$0.90
1/12/2017	2,824,560	\$63.02	-\$0.75
1/13/2017	1,316,786	\$62.78	-\$0.24
1/17/2017	3,538,101	\$63.10	\$0.32
1/18/2017	2,559,609	\$62.91	-\$0.19
1/19/2017	2,218,706	\$62.22	-\$0.69
1/20/2017	2,780,207	\$61.81	-\$0.41
1/23/2017	2,599,573	\$60.77	-\$1.04
1/24/2017	4,072,785	\$60.96	\$0.19
1/25/2017	3,907,602	\$61.43	\$0.47
1/26/2017	3,714,099	\$62.55	\$1.12

Exhibit 3B**Apache Corporation****Closing Price and Volume**

Source: Bloomberg

Date	Volume	Closing Price	Price Change
1/27/2017	3,282,846	\$62.08	-\$0.47
1/30/2017	3,332,799	\$59.95	-\$2.13
1/31/2017	4,648,863	\$59.82	-\$0.13
2/1/2017	5,847,598	\$57.78	-\$2.04
2/2/2017	3,098,348	\$59.09	\$1.31
2/3/2017	2,843,115	\$59.64	\$0.55
2/6/2017	2,671,642	\$57.87	-\$1.77
2/7/2017	4,686,799	\$57.03	-\$0.84
2/8/2017	3,084,581	\$56.93	-\$0.10
2/9/2017	2,625,008	\$56.92	-\$0.01
2/10/2017	2,710,626	\$57.38	\$0.46
2/13/2017	1,875,306	\$57.18	-\$0.20
2/14/2017	7,436,011	\$55.50	-\$1.68
2/15/2017	4,981,665	\$55.59	\$0.09
2/16/2017	2,798,380	\$55.25	-\$0.34
2/17/2017	2,524,390	\$55.44	\$0.19
2/21/2017	3,240,878	\$55.89	\$0.45
2/22/2017	4,380,615	\$54.91	-\$0.98
2/23/2017	11,695,938	\$52.98	-\$1.93
2/24/2017	5,686,300	\$53.41	\$0.43
2/27/2017	5,041,261	\$52.93	-\$0.48
2/28/2017	3,662,808	\$52.59	-\$0.34
3/1/2017	4,470,492	\$52.95	\$0.36
3/2/2017	4,266,577	\$51.92	-\$1.03
3/3/2017	2,864,719	\$52.09	\$0.17
3/6/2017	2,125,378	\$52.19	\$0.10
3/7/2017	3,375,332	\$51.28	-\$0.91
3/8/2017	5,307,203	\$49.41	-\$1.87
3/9/2017	7,189,588	\$50.63	\$1.22
3/10/2017	6,192,508	\$50.23	-\$0.40
3/13/2017	4,053,645	\$50.16	-\$0.07
3/14/2017	4,172,419	\$50.33	\$0.17
3/15/2017	3,262,577	\$51.07	\$0.74
3/16/2017	3,603,236	\$51.08	\$0.01
3/17/2017	5,229,431	\$51.22	\$0.14
3/20/2017	2,666,788	\$50.93	-\$0.29
3/21/2017	2,830,226	\$50.30	-\$0.63
3/22/2017	2,958,388	\$50.54	\$0.24
3/23/2017	3,489,006	\$50.09	-\$0.45
3/24/2017	2,650,633	\$50.24	\$0.15
3/27/2017	2,901,886	\$49.72	-\$0.52
3/28/2017	3,061,402	\$51.22	\$1.50
3/29/2017	4,572,290	\$53.18	\$1.96
3/30/2017	4,638,129	\$52.09	-\$1.09
3/31/2017	5,740,157	\$51.39	-\$0.70
4/3/2017	2,879,244	\$51.04	-\$0.35
4/4/2017	2,330,520	\$51.89	\$0.85
4/5/2017	3,856,720	\$51.70	-\$0.19
4/6/2017	3,153,120	\$52.96	\$1.26

Exhibit 3B**Apache Corporation****Closing Price and Volume**

Source: Bloomberg

Date	Volume	Closing Price	Price Change
4/7/2017	4,992,027	\$52.64	-\$0.32
4/10/2017	3,536,582	\$53.99	\$1.35
4/11/2017	2,880,176	\$53.87	-\$0.12
4/12/2017	4,391,082	\$53.81	-\$0.06
4/13/2017	4,445,383	\$52.37	-\$1.44
4/17/2017	3,099,473	\$52.50	\$0.13
4/18/2017	4,847,439	\$50.45	-\$2.05
4/19/2017	4,945,776	\$49.19	-\$1.26
4/20/2017	3,381,331	\$49.02	-\$0.17
4/21/2017	3,030,214	\$49.02	\$0.00
4/24/2017	3,850,633	\$48.74	-\$0.28
4/25/2017	3,137,352	\$50.25	\$1.51
4/26/2017	2,794,199	\$50.01	-\$0.24
4/27/2017	5,218,783	\$48.32	-\$1.69
4/28/2017	2,980,421	\$48.64	\$0.32
5/1/2017	2,915,999	\$48.79	\$0.15
5/2/2017	3,304,005	\$48.47	-\$0.32
5/3/2017	4,593,624	\$48.80	\$0.33
5/4/2017	7,881,172	\$47.90	-\$0.90
5/5/2017	4,237,629	\$49.29	\$1.39
5/8/2017	3,309,055	\$50.25	\$0.96
5/9/2017	3,467,933	\$50.45	\$0.20
5/10/2017	3,560,658	\$51.21	\$0.76
5/11/2017	1,851,203	\$51.07	-\$0.14
5/12/2017	2,650,423	\$51.45	\$0.38
5/15/2017	2,922,995	\$50.97	-\$0.48
5/16/2017	3,403,403	\$50.97	\$0.00
5/17/2017	2,711,757	\$50.19	-\$0.78
5/18/2017	3,573,145	\$49.92	-\$0.27
5/19/2017	2,898,694	\$51.16	\$1.24
5/22/2017	3,519,542	\$50.02	-\$1.14
5/23/2017	3,001,600	\$50.00	-\$0.02
5/24/2017	2,908,129	\$49.87	-\$0.13
5/25/2017	3,645,474	\$47.71	-\$2.16
5/26/2017	2,896,422	\$48.19	\$0.48
5/30/2017	3,783,435	\$47.56	-\$0.63
5/31/2017	4,216,266	\$46.76	-\$0.80
6/1/2017	2,816,225	\$47.30	\$0.54
6/2/2017	4,254,665	\$46.99	-\$0.31
6/5/2017	3,795,905	\$46.73	-\$0.26
6/6/2017	3,000,409	\$48.04	\$1.31
6/7/2017	7,075,123	\$46.78	-\$1.26
6/8/2017	4,618,142	\$47.00	\$0.22
6/9/2017	3,818,492	\$48.34	\$1.34
6/12/2017	3,055,204	\$48.42	\$0.08
6/13/2017	2,243,404	\$49.22	\$0.80
6/14/2017	3,793,631	\$47.72	-\$1.50
6/15/2017	4,673,440	\$47.80	\$0.08
6/16/2017	6,182,705	\$49.54	\$1.74

Exhibit 3B**Apache Corporation****Closing Price and Volume**

Source: Bloomberg

Date	Volume	Closing Price	Price Change
6/19/2017	2,977,722	\$49.82	\$0.28
6/20/2017	5,356,705	\$47.72	-\$2.10
6/21/2017	5,130,304	\$45.66	-\$2.06
6/22/2017	2,693,344	\$45.63	-\$0.03
6/23/2017	10,019,488	\$46.08	\$0.45
6/26/2017	2,491,625	\$46.21	\$0.13
6/27/2017	2,116,897	\$46.21	\$0.00
6/28/2017	2,562,266	\$47.14	\$0.93
6/29/2017	3,550,974	\$47.45	\$0.31
6/30/2017	2,817,378	\$47.93	\$0.48
7/3/2017	1,277,770	\$49.33	\$1.40
7/5/2017	2,251,311	\$47.65	-\$1.68
7/6/2017	3,540,149	\$45.77	-\$1.88
7/7/2017	4,343,362	\$45.11	-\$0.66
7/10/2017	5,679,470	\$47.11	\$2.00
7/11/2017	3,348,409	\$47.20	\$0.09
7/12/2017	3,218,786	\$47.58	\$0.38
7/13/2017	2,615,849	\$48.24	\$0.66
7/14/2017	2,305,278	\$48.56	\$0.32
7/17/2017	3,011,111	\$48.68	\$0.12
7/18/2017	2,322,141	\$47.73	-\$0.95
7/19/2017	6,096,940	\$49.86	\$2.13
7/20/2017	3,460,435	\$49.35	-\$0.51
7/21/2017	3,347,555	\$48.41	-\$0.94
7/24/2017	2,620,066	\$47.96	-\$0.45
7/25/2017	3,558,852	\$48.86	\$0.90
7/26/2017	2,063,226	\$48.86	\$0.00
7/27/2017	3,714,567	\$50.22	\$1.36
7/28/2017	3,982,656	\$50.01	-\$0.21
7/31/2017	2,085,476	\$49.48	-\$0.53
8/1/2017	2,843,307	\$48.66	-\$0.82
8/2/2017	4,465,555	\$47.91	-\$0.75
8/3/2017	11,183,990	\$44.06	-\$3.85
8/4/2017	7,043,091	\$45.22	\$1.16
8/7/2017	3,904,897	\$44.39	-\$0.83
8/8/2017	3,448,703	\$44.12	-\$0.27
8/9/2017	3,321,925	\$43.58	-\$0.54
8/10/2017	3,803,868	\$42.61	-\$0.97
8/11/2017	2,505,997	\$42.39	-\$0.22
8/14/2017	3,604,654	\$41.57	-\$0.82
8/15/2017	4,038,632	\$41.54	-\$0.03
8/16/2017	3,313,669	\$40.63	-\$0.91
8/17/2017	2,728,575	\$39.89	-\$0.74
8/18/2017	3,046,453	\$40.31	\$0.42
8/21/2017	4,071,353	\$39.52	-\$0.79
8/22/2017	3,008,076	\$39.89	\$0.37
8/23/2017	3,809,014	\$40.24	\$0.35
8/24/2017	1,886,505	\$40.03	-\$0.21
8/25/2017	2,399,444	\$40.06	\$0.03

Exhibit 3B**Apache Corporation****Closing Price and Volume**

Source: Bloomberg

Date	Volume	Closing Price	Price Change
8/28/2017	3,888,722	\$39.35	-\$0.71
8/29/2017	3,111,475	\$38.87	-\$0.48
8/30/2017	4,721,319	\$38.37	-\$0.50
8/31/2017	4,989,529	\$38.84	\$0.47
9/1/2017	2,955,868	\$39.48	\$0.64
9/5/2017	2,891,271	\$39.42	-\$0.06
9/6/2017	2,902,040	\$40.13	\$0.71
9/7/2017	4,129,424	\$40.73	\$0.60
9/8/2017	3,726,337	\$39.30	-\$1.43
9/11/2017	2,560,552	\$39.76	\$0.46
9/12/2017	2,391,829	\$40.52	\$0.76
9/13/2017	4,401,081	\$42.34	\$1.82
9/14/2017	4,117,586	\$42.22	-\$0.12
9/15/2017	3,101,582	\$42.52	\$0.30
9/18/2017	2,550,319	\$42.30	-\$0.22
9/19/2017	1,865,569	\$41.75	-\$0.55
9/20/2017	3,033,310	\$43.05	\$1.30
9/21/2017	2,566,780	\$43.36	\$0.31
9/22/2017	1,920,889	\$43.57	\$0.21
9/25/2017	4,220,256	\$45.06	\$1.49
9/26/2017	4,365,457	\$45.96	\$0.90
9/27/2017	2,356,206	\$46.26	\$0.30
9/28/2017	3,362,178	\$45.80	-\$0.46
9/29/2017	2,051,421	\$45.80	\$0.00
10/2/2017	2,234,891	\$45.72	-\$0.08
10/3/2017	1,637,370	\$45.44	-\$0.28
10/4/2017	4,591,261	\$45.14	-\$0.30
10/5/2017	2,118,536	\$45.82	\$0.68
10/6/2017	2,548,401	\$45.17	-\$0.65
10/9/2017	3,278,533	\$45.85	\$0.68
10/10/2017	10,110,658	\$42.46	-\$3.39
10/11/2017	4,867,125	\$41.96	-\$0.50
10/12/2017	6,136,691	\$41.41	-\$0.55
10/13/2017	3,019,672	\$41.60	\$0.19
10/16/2017	4,190,807	\$42.73	\$1.13
10/17/2017	3,392,743	\$42.76	\$0.03
10/18/2017	4,142,476	\$42.65	-\$0.11
10/19/2017	3,679,922	\$42.15	-\$0.50
10/20/2017	4,431,635	\$41.53	-\$0.62
10/23/2017	5,102,317	\$40.30	-\$1.23
10/24/2017	5,513,472	\$40.14	-\$0.16
10/25/2017	3,969,171	\$39.51	-\$0.63
10/26/2017	3,114,453	\$39.59	\$0.08
10/27/2017	3,625,220	\$40.74	\$1.15
10/30/2017	2,323,946	\$40.81	\$0.07
10/31/2017	2,073,615	\$41.37	\$0.56
11/1/2017	3,522,731	\$42.23	\$0.86
11/2/2017	3,534,397	\$41.68	-\$0.55
11/3/2017	3,123,909	\$42.75	\$1.07

Exhibit 3B**Apache Corporation****Closing Price and Volume**

Source: Bloomberg

Date	Volume	Closing Price	Price Change
11/6/2017	5,452,222	\$45.74	\$2.99
11/7/2017	3,761,123	\$45.19	-\$0.55
11/8/2017	4,365,496	\$44.51	-\$0.68
11/9/2017	3,444,128	\$45.24	\$0.73
11/10/2017	2,237,662	\$44.13	-\$1.11
11/13/2017	1,969,887	\$43.49	-\$0.64
11/14/2017	2,451,015	\$41.88	-\$1.61
11/15/2017	2,855,610	\$41.03	-\$0.85
11/16/2017	2,451,554	\$40.49	-\$0.54
11/17/2017	2,113,749	\$41.18	\$0.69
11/20/2017	2,707,347	\$41.07	-\$0.11
11/21/2017	2,017,697	\$41.44	\$0.37
11/22/2017	2,094,110	\$41.54	\$0.10
11/24/2017	1,103,677	\$41.14	-\$0.40
11/27/2017	2,944,077	\$39.86	-\$1.28
11/28/2017	2,118,255	\$40.27	\$0.41
11/29/2017	1,787,977	\$40.74	\$0.47
11/30/2017	3,914,022	\$41.83	\$1.09
12/1/2017	5,402,301	\$44.22	\$2.39
12/4/2017	2,758,868	\$43.21	-\$1.01
12/5/2017	1,871,119	\$42.15	-\$1.06
12/6/2017	2,658,372	\$40.57	-\$1.58
12/7/2017	2,200,419	\$40.63	\$0.06
12/8/2017	3,421,798	\$40.70	\$0.07
12/11/2017	5,196,407	\$40.19	-\$0.51
12/12/2017	4,167,424	\$39.72	-\$0.47
12/13/2017	3,784,688	\$39.80	\$0.08
12/14/2017	3,129,875	\$39.42	-\$0.38
12/15/2017	5,144,876	\$39.47	\$0.05
12/18/2017	3,480,950	\$39.92	\$0.45
12/19/2017	2,617,700	\$40.25	\$0.33
12/20/2017	2,913,783	\$41.26	\$1.01
12/21/2017	5,213,142	\$43.31	\$2.05
12/22/2017	2,528,332	\$42.91	-\$0.40
12/26/2017	2,103,394	\$43.36	\$0.45
12/27/2017	2,126,957	\$42.89	-\$0.47
12/28/2017	2,076,279	\$42.87	-\$0.02
12/29/2017	3,258,898	\$42.22	-\$0.65
1/2/2018	4,005,157	\$44.30	\$2.08
1/3/2018	3,915,466	\$45.33	\$1.03
1/4/2018	4,064,590	\$46.84	\$1.51
1/5/2018	4,537,784	\$46.39	-\$0.45
1/8/2018	3,928,416	\$45.92	-\$0.47
1/9/2018	5,144,087	\$44.55	-\$1.37
1/10/2018	3,553,453	\$43.99	-\$0.56
1/11/2018	6,790,967	\$46.00	\$2.01
1/12/2018	3,728,015	\$47.16	\$1.16
1/16/2018	4,483,160	\$46.27	-\$0.89
1/17/2018	2,793,595	\$46.53	\$0.26

Exhibit 3B**Apache Corporation****Closing Price and Volume**

Source: Bloomberg

Date	Volume	Closing Price	Price Change
1/18/2018	2,822,222	\$46.70	\$0.17
1/19/2018	3,283,059	\$46.05	-\$0.65
1/22/2018	3,192,047	\$47.66	\$1.61
1/23/2018	4,447,401	\$47.77	\$0.11
1/24/2018	5,617,061	\$48.12	\$0.35
1/25/2018	4,112,204	\$47.45	-\$0.67
1/26/2018	3,132,470	\$48.08	\$0.63
1/29/2018	3,180,804	\$46.65	-\$1.43
1/30/2018	5,887,464	\$44.57	-\$2.08
1/31/2018	5,031,882	\$44.87	\$0.30
2/1/2018	3,981,392	\$44.69	-\$0.18
2/2/2018	5,153,633	\$42.82	-\$1.87
2/5/2018	4,051,871	\$40.93	-\$1.89
2/6/2018	5,749,211	\$41.12	\$0.19
2/7/2018	5,675,382	\$39.55	-\$1.57
2/8/2018	5,190,142	\$37.73	-\$1.82
2/9/2018	5,896,142	\$37.23	-\$0.50
2/12/2018	5,521,996	\$38.11	\$0.88
2/13/2018	4,334,097	\$37.70	-\$0.41
2/14/2018	4,485,517	\$38.20	\$0.50
2/15/2018	4,033,576	\$38.10	-\$0.10
2/16/2018	4,157,701	\$38.11	\$0.01
2/20/2018	3,073,146	\$38.30	\$0.19
2/21/2018	6,918,395	\$37.20	-\$1.10
2/22/2018	13,587,409	\$34.85	-\$2.35
2/23/2018	8,077,559	\$36.13	\$1.28
2/26/2018	5,468,084	\$35.98	-\$0.15
2/27/2018	5,756,560	\$34.80	-\$1.18
2/28/2018	8,278,809	\$34.15	-\$0.65
3/1/2018	5,861,904	\$34.27	\$0.12
3/2/2018	4,532,539	\$34.78	\$0.51
3/5/2018	3,579,761	\$35.21	\$0.43
3/6/2018	4,726,929	\$35.36	\$0.15
3/7/2018	5,018,704	\$34.65	-\$0.71
3/8/2018	3,900,002	\$34.97	\$0.32
3/9/2018	3,409,316	\$35.32	\$0.35
3/12/2018	3,036,793	\$35.41	\$0.09
3/13/2018	3,541,287	\$35.46	\$0.05
3/14/2018	4,363,348	\$35.65	\$0.19
3/15/2018	5,385,560	\$35.34	-\$0.31
3/16/2018	7,821,451	\$36.14	\$0.80
3/19/2018	7,509,428	\$35.57	-\$0.57
3/20/2018	4,881,028	\$36.27	\$0.70
3/21/2018	4,371,379	\$38.10	\$1.83
3/22/2018	5,555,671	\$37.28	-\$0.82
3/23/2018	5,934,781	\$37.01	-\$0.27
3/26/2018	3,672,211	\$37.28	\$0.27
3/27/2018	6,917,435	\$37.48	\$0.20
3/28/2018	7,176,196	\$37.35	-\$0.13

Exhibit 3B**Apache Corporation****Closing Price and Volume**

Source: Bloomberg

Date	Volume	Closing Price	Price Change
3/29/2018	6,575,891	\$38.48	\$1.13
4/2/2018	5,973,388	\$37.90	-\$0.58
4/3/2018	6,953,027	\$38.00	\$0.10
4/4/2018	7,160,471	\$38.19	\$0.19
4/5/2018	5,091,267	\$38.75	\$0.56
4/6/2018	4,970,736	\$38.34	-\$0.41
4/9/2018	4,038,439	\$38.45	\$0.11
4/10/2018	8,260,688	\$39.28	\$0.83
4/11/2018	3,749,506	\$39.64	\$0.36
4/12/2018	3,630,228	\$39.38	-\$0.26
4/13/2018	4,684,326	\$40.62	\$1.24
4/16/2018	3,431,501	\$40.79	\$0.17
4/17/2018	3,834,010	\$41.35	\$0.56
4/18/2018	4,629,583	\$42.84	\$1.49
4/19/2018	4,737,109	\$42.03	-\$0.81
4/20/2018	5,190,851	\$41.45	-\$0.58
4/23/2018	4,601,210	\$41.53	\$0.08
4/24/2018	4,248,434	\$40.64	-\$0.89
4/25/2018	4,391,893	\$41.00	\$0.36
4/26/2018	3,567,976	\$40.88	-\$0.12
4/27/2018	4,044,357	\$40.18	-\$0.70
4/30/2018	3,946,298	\$40.95	\$0.77
5/1/2018	2,760,409	\$40.45	-\$0.50
5/2/2018	4,439,198	\$41.06	\$0.61
5/3/2018	7,491,473	\$38.54	-\$2.52
5/4/2018	3,881,160	\$39.49	\$0.95
5/7/2018	3,830,248	\$39.47	-\$0.02
5/8/2018	4,425,767	\$40.12	\$0.65
5/9/2018	4,512,778	\$41.25	\$1.13
5/10/2018	3,201,365	\$41.64	\$0.39
5/11/2018	2,217,185	\$41.41	-\$0.23
5/14/2018	2,478,424	\$42.31	\$0.90
5/15/2018	2,031,511	\$42.52	\$0.21
5/16/2018	1,806,307	\$42.66	\$0.14
5/17/2018	4,359,825	\$44.01	\$1.35
5/18/2018	3,321,815	\$43.91	-\$0.10
5/21/2018	2,086,110	\$44.28	\$0.37
5/22/2018	2,935,816	\$43.13	-\$1.15
5/23/2018	2,275,717	\$42.57	-\$0.56
5/24/2018	3,068,593	\$41.26	-\$1.31
5/25/2018	5,017,970	\$39.28	-\$1.98
5/29/2018	2,669,435	\$39.00	-\$0.28
5/30/2018	3,104,624	\$40.71	\$1.71
5/31/2018	3,844,853	\$40.00	-\$0.71
6/1/2018	3,798,234	\$38.97	-\$1.03
6/4/2018	5,566,247	\$39.18	\$0.21
6/5/2018	3,352,493	\$39.25	\$0.07
6/6/2018	3,463,343	\$39.58	\$0.33
6/7/2018	5,287,532	\$41.75	\$2.17

Exhibit 3B**Apache Corporation****Closing Price and Volume**

Source: Bloomberg

Date	Volume	Closing Price	Price Change
6/8/2018	4,500,019	\$42.24	\$0.49
6/11/2018	6,943,399	\$44.60	\$2.36
6/12/2018	7,035,277	\$42.76	-\$1.84
6/13/2018	5,700,594	\$43.32	\$0.56
6/14/2018	3,793,746	\$42.89	-\$0.43
6/15/2018	8,703,638	\$41.61	-\$1.28
6/18/2018	6,392,096	\$42.84	\$1.23
6/19/2018	3,977,672	\$43.26	\$0.42
6/20/2018	8,224,112	\$45.68	\$2.42
6/21/2018	5,339,169	\$44.36	-\$1.32
6/22/2018	5,147,237	\$44.76	\$0.40
6/25/2018	4,064,273	\$43.14	-\$1.62
6/26/2018	3,458,222	\$44.17	\$1.03
6/27/2018	4,602,535	\$45.89	\$1.72
6/28/2018	2,762,797	\$45.94	\$0.05
6/29/2018	4,915,242	\$46.75	\$0.81
7/2/2018	4,250,770	\$44.68	-\$2.07
7/3/2018	2,373,553	\$45.78	\$1.10
7/5/2018	4,142,995	\$46.33	\$0.55
7/6/2018	2,693,069	\$46.91	\$0.58
7/9/2018	4,284,063	\$48.40	\$1.49
7/10/2018	2,983,791	\$48.61	\$0.21
7/11/2018	2,785,627	\$47.68	-\$0.93
7/12/2018	2,867,172	\$47.07	-\$0.61
7/13/2018	2,749,447	\$47.45	\$0.38
7/16/2018	3,221,620	\$46.00	-\$1.45
7/17/2018	2,654,944	\$45.26	-\$0.74
7/18/2018	3,590,441	\$44.46	-\$0.80
7/19/2018	2,541,788	\$44.55	\$0.09
7/20/2018	2,039,754	\$44.38	-\$0.17
7/23/2018	1,857,947	\$44.35	-\$0.03
7/24/2018	2,302,134	\$45.05	\$0.70
7/25/2018	2,066,428	\$45.70	\$0.65
7/26/2018	1,960,919	\$45.72	\$0.02
7/27/2018	2,691,562	\$45.01	-\$0.71
7/30/2018	2,027,418	\$46.06	\$1.05
7/31/2018	1,847,477	\$46.00	-\$0.06
8/1/2018	4,473,724	\$44.94	-\$1.06
8/2/2018	5,896,480	\$44.41	-\$0.53
8/3/2018	2,829,070	\$45.15	\$0.74
8/6/2018	1,924,942	\$45.64	\$0.49
8/7/2018	2,509,699	\$46.38	\$0.74
8/8/2018	2,369,875	\$46.13	-\$0.25
8/9/2018	9,334,521	\$43.29	-\$2.84
8/10/2018	3,490,264	\$44.17	\$0.88
8/13/2018	2,788,300	\$43.69	-\$0.48
8/14/2018	1,589,245	\$43.90	\$0.21
8/15/2018	3,975,098	\$41.98	-\$1.92
8/16/2018	2,560,581	\$42.17	\$0.19

Exhibit 3B**Apache Corporation****Closing Price and Volume**

Source: Bloomberg

Date	Volume	Closing Price	Price Change
8/17/2018	2,247,101	\$42.00	-\$0.17
8/20/2018	1,886,996	\$42.03	\$0.03
8/21/2018	1,938,727	\$42.67	\$0.64
8/22/2018	1,929,864	\$43.28	\$0.61
8/23/2018	1,735,724	\$42.86	-\$0.42
8/24/2018	1,589,090	\$43.49	\$0.63
8/27/2018	1,528,298	\$43.77	\$0.28
8/28/2018	2,099,355	\$42.76	-\$1.01
8/29/2018	3,175,313	\$43.73	\$0.97
8/30/2018	3,047,251	\$44.38	\$0.65
8/31/2018	2,096,277	\$43.83	-\$0.55
9/4/2018	1,651,938	\$43.18	-\$0.65
9/5/2018	2,554,499	\$43.92	\$0.74
9/6/2018	2,355,702	\$42.66	-\$1.26
9/7/2018	2,112,475	\$42.87	\$0.21
9/10/2018	1,847,793	\$43.31	\$0.44
9/11/2018	2,100,865	\$44.09	\$0.78
9/12/2018	2,797,335	\$45.13	\$1.04
9/13/2018	2,481,685	\$44.54	-\$0.59
9/14/2018	2,866,516	\$45.46	\$0.92
9/17/2018	2,839,801	\$45.78	\$0.32
9/18/2018	2,650,809	\$46.26	\$0.48
9/19/2018	2,524,206	\$46.80	\$0.54
9/20/2018	3,571,435	\$45.67	-\$1.13
9/21/2018	5,069,854	\$45.96	\$0.29
9/24/2018	4,474,192	\$47.48	\$1.52
9/25/2018	3,386,621	\$47.78	\$0.30
9/26/2018	3,180,340	\$47.23	-\$0.55
9/27/2018	2,257,107	\$47.43	\$0.20
9/28/2018	3,294,527	\$47.67	\$0.24
10/1/2018	2,621,466	\$48.36	\$0.69
10/2/2018	1,973,699	\$48.55	\$0.19
10/3/2018	3,140,403	\$48.88	\$0.33
10/4/2018	3,593,229	\$48.48	-\$0.40
10/5/2018	2,973,928	\$47.98	-\$0.50
10/8/2018	3,133,536	\$48.00	\$0.02
10/9/2018	4,394,128	\$49.30	\$1.30
10/10/2018	5,432,642	\$46.40	-\$2.90
10/11/2018	4,574,546	\$44.63	-\$1.77
10/12/2018	4,141,783	\$45.13	\$0.50
10/15/2018	2,758,263	\$44.57	-\$0.56
10/16/2018	3,443,735	\$44.51	-\$0.06
10/17/2018	4,704,228	\$43.28	-\$1.23
10/18/2018	3,231,871	\$42.33	-\$0.95
10/19/2018	3,168,228	\$42.10	-\$0.23
10/22/2018	3,150,527	\$41.29	-\$0.81
10/23/2018	3,607,948	\$39.78	-\$1.51
10/24/2018	3,539,749	\$37.97	-\$1.81
10/25/2018	3,493,728	\$38.15	\$0.18

Exhibit 3B**Apache Corporation****Closing Price and Volume**

Source: Bloomberg

Date	Volume	Closing Price	Price Change
10/26/2018	3,236,862	\$37.39	-\$0.76
10/29/2018	3,900,642	\$36.18	-\$1.21
10/30/2018	4,800,562	\$37.45	\$1.27
10/31/2018	4,849,839	\$37.83	\$0.38
11/1/2018	9,358,301	\$36.39	-\$1.44
11/2/2018	7,143,897	\$35.94	-\$0.45
11/5/2018	4,114,185	\$37.58	\$1.64
11/6/2018	2,882,458	\$37.34	-\$0.24
11/7/2018	3,639,365	\$37.81	\$0.47
11/8/2018	4,197,518	\$36.02	-\$1.79
11/9/2018	7,827,920	\$37.08	\$1.06
11/12/2018	3,800,833	\$36.05	-\$1.03
11/13/2018	5,263,923	\$35.24	-\$0.81
11/14/2018	5,550,894	\$36.12	\$0.88
11/15/2018	4,427,504	\$36.99	\$0.87
11/16/2018	4,361,009	\$37.43	\$0.44
11/19/2018	3,346,539	\$36.53	-\$0.90
11/20/2018	5,721,298	\$34.67	-\$1.86
11/21/2018	3,388,584	\$36.03	\$1.36
11/23/2018	1,860,723	\$34.86	-\$1.17
11/26/2018	4,751,763	\$35.37	\$0.51
11/27/2018	4,032,430	\$35.08	-\$0.29
11/28/2018	4,005,815	\$35.26	\$0.18
11/29/2018	3,084,235	\$35.54	\$0.28
11/30/2018	5,394,913	\$35.13	-\$0.41
12/3/2018	3,678,849	\$36.49	\$1.36
12/4/2018	3,611,953	\$35.04	-\$1.45
12/6/2018	5,646,127	\$33.90	-\$1.14
12/7/2018	5,157,140	\$33.01	-\$0.89
12/10/2018	6,758,302	\$31.26	-\$1.75
12/11/2018	6,854,334	\$30.57	-\$0.69
12/12/2018	6,013,907	\$31.33	\$0.76
12/13/2018	5,957,208	\$31.30	-\$0.03
12/14/2018	6,897,442	\$30.24	-\$1.06
12/17/2018	6,620,111	\$30.17	-\$0.07
12/18/2018	8,197,033	\$29.24	-\$0.93
12/19/2018	5,916,535	\$28.75	-\$0.49
12/20/2018	6,196,919	\$27.00	-\$1.75
12/21/2018	9,967,583	\$26.55	-\$0.45
12/24/2018	3,044,512	\$25.40	-\$1.15
12/26/2018	7,648,356	\$27.04	\$1.64
12/27/2018	5,420,515	\$26.74	-\$0.30
12/28/2018	4,855,126	\$26.34	-\$0.40
12/31/2018	4,429,868	\$26.25	-\$0.09
1/2/2019	4,629,500	\$27.11	\$0.86
1/3/2019	5,351,459	\$27.18	\$0.07
1/4/2019	4,215,658	\$28.32	\$1.14
1/7/2019	3,924,411	\$28.93	\$0.61
1/8/2019	4,131,008	\$29.36	\$0.43

Exhibit 3B**Apache Corporation****Closing Price and Volume**

Source: Bloomberg

Date	Volume	Closing Price	Price Change
1/9/2019	6,869,149	\$30.86	\$1.50
1/10/2019	3,929,942	\$30.96	\$0.10
1/11/2019	4,909,903	\$31.10	\$0.14
1/14/2019	4,698,548	\$31.57	\$0.47
1/15/2019	4,821,858	\$31.75	\$0.18
1/16/2019	8,929,696	\$31.21	-\$0.54
1/17/2019	3,943,206	\$31.69	\$0.48
1/18/2019	4,621,789	\$32.09	\$0.40
1/22/2019	4,161,366	\$31.52	-\$0.57
1/23/2019	4,191,115	\$30.97	-\$0.55
1/24/2019	4,443,667	\$31.84	\$0.87
1/25/2019	4,476,849	\$32.06	\$0.22
1/28/2019	4,626,634	\$32.29	\$0.23
1/29/2019	5,734,336	\$33.08	\$0.79
1/30/2019	3,361,022	\$33.40	\$0.32
1/31/2019	4,330,011	\$32.82	-\$0.58
2/1/2019	5,799,698	\$32.65	-\$0.17
2/4/2019	5,384,762	\$33.13	\$0.48
2/5/2019	3,886,837	\$32.83	-\$0.30
2/6/2019	4,385,951	\$31.85	-\$0.98
2/7/2019	3,927,706	\$30.53	-\$1.32
2/8/2019	4,388,430	\$29.87	-\$0.66
2/11/2019	3,228,505	\$30.35	\$0.48
2/12/2019	4,817,690	\$31.08	\$0.73
2/13/2019	4,721,736	\$32.28	\$1.20
2/14/2019	3,972,550	\$32.67	\$0.39
2/15/2019	4,873,090	\$33.30	\$0.63
2/19/2019	3,039,994	\$33.31	\$0.01
2/20/2019	5,013,966	\$33.80	\$0.49
2/21/2019	3,848,983	\$33.37	-\$0.43
2/22/2019	7,531,757	\$33.47	\$0.10
2/25/2019	3,223,627	\$33.46	-\$0.01
2/26/2019	2,791,913	\$33.09	-\$0.37
2/27/2019	5,274,525	\$33.56	\$0.47
2/28/2019	7,677,586	\$33.18	-\$0.38
3/1/2019	4,771,289	\$33.99	\$0.81
3/4/2019	4,202,466	\$33.67	-\$0.32
3/5/2019	3,007,721	\$33.73	\$0.06
3/6/2019	3,253,441	\$32.73	-\$1.00
3/7/2019	4,280,421	\$33.27	\$0.54
3/8/2019	5,241,090	\$31.95	-\$1.32
3/11/2019	4,673,770	\$32.75	\$0.80
3/12/2019	5,924,649	\$33.68	\$0.93
3/13/2019	3,730,247	\$34.32	\$0.64
3/14/2019	3,143,081	\$34.27	-\$0.05
3/15/2019	5,013,860	\$34.45	\$0.18
3/18/2019	2,894,019	\$35.01	\$0.56
3/19/2019	2,768,316	\$34.49	-\$0.52
3/20/2019	4,329,478	\$35.29	\$0.80

Exhibit 3B**Apache Corporation****Closing Price and Volume**

Source: Bloomberg

Date	Volume	Closing Price	Price Change
3/21/2019	3,700,595	\$36.08	\$0.79
3/22/2019	4,100,899	\$34.82	-\$1.26
3/25/2019	3,352,594	\$34.92	\$0.10
3/26/2019	2,763,498	\$35.66	\$0.74
3/27/2019	2,613,210	\$35.02	-\$0.64
3/28/2019	3,066,185	\$35.09	\$0.07
3/29/2019	3,890,872	\$34.66	-\$0.43
4/1/2019	3,325,454	\$34.97	\$0.31
4/2/2019	2,819,497	\$34.28	-\$0.69
4/3/2019	5,193,639	\$33.06	-\$1.22
4/4/2019	5,901,764	\$33.37	\$0.31
4/5/2019	5,549,188	\$35.57	\$2.20
4/8/2019	3,383,485	\$35.56	-\$0.01
4/9/2019	2,700,357	\$34.88	-\$0.68
4/10/2019	3,149,024	\$35.72	\$0.84
4/11/2019	3,060,518	\$35.64	-\$0.08
4/12/2019	6,469,028	\$36.50	\$0.86
4/15/2019	3,387,780	\$35.95	-\$0.55
4/16/2019	4,584,972	\$36.56	\$0.61
4/17/2019	3,302,313	\$36.84	\$0.28
4/18/2019	3,965,389	\$35.87	-\$0.97
4/22/2019	3,905,097	\$37.09	\$1.22
4/23/2019	4,767,568	\$36.43	-\$0.66
4/24/2019	2,994,829	\$35.48	-\$0.95
4/25/2019	4,333,524	\$34.06	-\$1.42
4/26/2019	4,654,570	\$33.06	-\$1.00
4/29/2019	2,711,305	\$33.22	\$0.16
4/30/2019	3,237,791	\$32.91	-\$0.31
5/1/2019	5,228,817	\$31.71	-\$1.20
5/2/2019	7,311,630	\$29.78	-\$1.93
5/3/2019	4,709,536	\$30.59	\$0.81
5/6/2019	4,255,061	\$30.78	\$0.19
5/7/2019	3,984,106	\$30.51	-\$0.27
5/8/2019	12,126,966	\$30.61	\$0.10
5/9/2019	3,796,037	\$31.06	\$0.45
5/10/2019	4,259,273	\$31.22	\$0.16
5/13/2019	2,916,694	\$30.14	-\$1.08
5/14/2019	2,963,988	\$31.01	\$0.87
5/15/2019	2,934,755	\$31.17	\$0.16
5/16/2019	3,023,930	\$31.23	\$0.06
5/17/2019	2,706,106	\$30.41	-\$0.82
5/20/2019	3,508,331	\$29.93	-\$0.48
5/21/2019	3,024,032	\$30.83	\$0.90
5/22/2019	3,697,464	\$29.49	-\$1.34
5/23/2019	5,128,253	\$27.66	-\$1.83
5/24/2019	4,125,729	\$27.33	-\$0.33
5/28/2019	4,909,745	\$26.91	-\$0.42
5/29/2019	6,622,453	\$26.66	-\$0.25
5/30/2019	3,831,250	\$26.18	-\$0.48

Exhibit 3B**Apache Corporation****Closing Price and Volume**

Source: Bloomberg

Date	Volume	Closing Price	Price Change
5/31/2019	4,687,495	\$26.07	-\$0.11
6/3/2019	5,466,549	\$26.89	\$0.82
6/4/2019	6,135,878	\$28.34	\$1.45
6/5/2019	5,178,128	\$28.04	-\$0.30
6/6/2019	4,630,752	\$28.84	\$0.80
6/7/2019	4,068,644	\$28.95	\$0.11
6/10/2019	3,624,454	\$28.88	-\$0.07
6/11/2019	3,965,314	\$28.85	-\$0.03
6/12/2019	10,080,094	\$28.01	-\$0.84
6/13/2019	3,409,809	\$28.36	\$0.35
6/14/2019	3,115,075	\$27.49	-\$0.87
6/17/2019	2,166,054	\$27.84	\$0.35
6/18/2019	4,158,768	\$28.64	\$0.80
6/19/2019	2,542,073	\$28.62	-\$0.02
6/20/2019	3,466,481	\$29.51	\$0.89
6/21/2019	5,130,910	\$29.64	\$0.13
6/24/2019	2,658,069	\$29.07	-\$0.57
6/25/2019	3,739,058	\$28.22	-\$0.85
6/26/2019	3,575,982	\$29.03	\$0.81
6/27/2019	2,559,237	\$28.64	-\$0.39
6/28/2019	3,426,374	\$28.97	\$0.33
7/1/2019	3,668,341	\$29.20	\$0.23
7/2/2019	4,430,758	\$27.40	-\$1.80
7/3/2019	3,235,501	\$27.28	-\$0.12
7/5/2019	8,024,082	\$27.18	-\$0.10
7/8/2019	6,944,274	\$26.50	-\$0.68
7/9/2019	5,498,185	\$26.95	\$0.45
7/10/2019	6,288,563	\$27.47	\$0.52
7/11/2019	4,659,410	\$26.74	-\$0.73
7/12/2019	3,776,387	\$26.91	\$0.17
7/15/2019	3,141,576	\$26.35	-\$0.56
7/16/2019	8,310,055	\$25.24	-\$1.11
7/17/2019	4,842,929	\$24.48	-\$0.76
7/18/2019	9,291,451	\$23.55	-\$0.93
7/19/2019	8,065,465	\$24.03	\$0.48
7/22/2019	3,533,853	\$23.86	-\$0.17
7/23/2019	3,310,823	\$24.31	\$0.45
7/24/2019	4,433,445	\$24.79	\$0.48
7/25/2019	3,618,814	\$24.18	-\$0.61
7/26/2019	4,457,025	\$23.93	-\$0.25
7/29/2019	5,418,176	\$23.33	-\$0.60
7/30/2019	5,125,805	\$24.10	\$0.77
7/31/2019	6,042,255	\$24.42	\$0.32
8/1/2019	8,212,138	\$24.12	-\$0.30
8/2/2019	4,508,694	\$24.19	\$0.07
8/5/2019	5,613,327	\$23.25	-\$0.94
8/6/2019	4,860,976	\$22.92	-\$0.33
8/7/2019	6,174,804	\$21.99	-\$0.93
8/8/2019	5,480,291	\$22.45	\$0.46

Exhibit 3B**Apache Corporation****Closing Price and Volume**

Source: Bloomberg

Date	Volume	Closing Price	Price Change
8/9/2019	3,270,750	\$21.97	-\$0.48
8/12/2019	9,210,912	\$21.55	-\$0.42
8/13/2019	15,607,871	\$21.92	\$0.37
8/14/2019	6,008,347	\$20.08	-\$1.84
8/15/2019	5,149,145	\$19.93	-\$0.15
8/16/2019	5,316,891	\$20.84	\$0.91
8/19/2019	5,531,729	\$21.90	\$1.06
8/20/2019	2,915,056	\$21.75	-\$0.15
8/21/2019	5,031,300	\$21.73	-\$0.02
8/22/2019	4,558,326	\$21.46	-\$0.27
8/23/2019	7,435,059	\$20.69	-\$0.77
8/26/2019	4,647,418	\$21.00	\$0.31
8/27/2019	5,229,953	\$20.96	-\$0.04
8/28/2019	3,999,897	\$21.63	\$0.67
8/29/2019	4,466,930	\$22.04	\$0.41
8/30/2019	3,152,287	\$21.57	-\$0.47
9/3/2019	4,961,517	\$21.41	-\$0.16
9/4/2019	4,052,558	\$22.04	\$0.63
9/5/2019	4,963,576	\$22.67	\$0.63
9/6/2019	3,852,972	\$22.35	-\$0.32
9/9/2019	6,123,149	\$23.65	\$1.30
9/10/2019	4,925,777	\$23.70	\$0.05
9/11/2019	5,081,012	\$23.99	\$0.29
9/12/2019	3,772,476	\$23.84	-\$0.15
9/13/2019	3,948,593	\$24.34	\$0.50
9/16/2019	17,812,027	\$28.45	\$4.11
9/17/2019	9,922,087	\$26.02	-\$2.43
9/18/2019	12,096,029	\$25.43	-\$0.59
9/19/2019	5,018,648	\$25.76	\$0.33
9/20/2019	6,144,011	\$25.80	\$0.04
9/23/2019	5,054,650	\$26.18	\$0.38
9/24/2019	4,191,122	\$25.38	-\$0.80
9/25/2019	4,308,253	\$25.52	\$0.14
9/26/2019	4,535,174	\$25.27	-\$0.25
9/27/2019	5,141,049	\$25.70	\$0.43
9/30/2019	3,847,876	\$25.60	-\$0.10
10/1/2019	4,376,127	\$24.27	-\$1.33
10/2/2019	4,363,275	\$23.20	-\$1.07
10/3/2019	5,753,368	\$23.37	\$0.17
10/4/2019	6,228,731	\$22.16	-\$1.21
10/7/2019	5,585,367	\$21.40	-\$0.76
10/8/2019	6,353,957	\$20.25	-\$1.15
10/9/2019	4,906,698	\$20.53	\$0.28
10/10/2019	4,145,860	\$20.43	-\$0.10
10/11/2019	6,246,476	\$21.42	\$0.99
10/14/2019	8,722,842	\$21.94	\$0.52
10/15/2019	5,372,742	\$22.18	\$0.24
10/16/2019	6,649,104	\$21.76	-\$0.42
10/17/2019	4,479,922	\$22.12	\$0.36

Exhibit 3B**Apache Corporation****Closing Price and Volume**

Source: Bloomberg

Date	Volume	Closing Price	Price Change
10/18/2019	8,685,319	\$22.44	\$0.32
10/21/2019	4,853,803	\$22.77	\$0.33
10/22/2019	4,823,659	\$22.95	\$0.18
10/23/2019	3,679,374	\$23.54	\$0.59
10/24/2019	4,393,375	\$23.23	-\$0.31
10/25/2019	14,569,991	\$22.07	-\$1.16
10/28/2019	5,127,259	\$21.73	-\$0.34
10/29/2019	4,761,266	\$22.05	\$0.32
10/30/2019	4,859,844	\$21.36	-\$0.69
10/31/2019	6,712,073	\$21.66	\$0.30
11/1/2019	10,233,546	\$23.81	\$2.15
11/4/2019	7,326,040	\$24.52	\$0.71
11/5/2019	6,280,840	\$23.96	-\$0.56
11/6/2019	4,776,806	\$23.62	-\$0.34
11/7/2019	6,139,182	\$24.08	\$0.46
11/8/2019	4,338,104	\$24.43	\$0.35
11/11/2019	4,421,668	\$23.85	-\$0.58
11/12/2019	4,287,874	\$23.80	-\$0.05
11/13/2019	3,179,704	\$23.30	-\$0.50
11/14/2019	5,126,547	\$23.43	\$0.13
11/15/2019	4,145,213	\$23.91	\$0.48
11/18/2019	4,286,319	\$22.98	-\$0.93
11/19/2019	2,944,271	\$22.37	-\$0.61
11/20/2019	3,123,023	\$22.87	\$0.50
11/21/2019	4,423,304	\$23.22	\$0.35
11/22/2019	3,442,035	\$23.41	\$0.19
11/25/2019	4,438,538	\$23.55	\$0.14
11/26/2019	4,699,105	\$22.89	-\$0.66
11/27/2019	4,219,268	\$23.22	\$0.33
11/29/2019	3,198,120	\$22.28	-\$0.94
12/2/2019	22,790,574	\$19.54	-\$2.74
12/3/2019	15,187,359	\$18.38	-\$1.16
12/4/2019	10,408,036	\$18.70	\$0.32
12/5/2019	7,503,783	\$18.58	-\$0.12
12/6/2019	10,085,924	\$19.99	\$1.41
12/9/2019	8,730,000	\$20.63	\$0.64
12/10/2019	6,271,052	\$20.93	\$0.30
12/11/2019	4,714,769	\$21.28	\$0.35
12/12/2019	6,291,044	\$22.04	\$0.76
12/13/2019	5,355,673	\$21.35	-\$0.69
12/16/2019	5,109,169	\$22.07	\$0.72
12/17/2019	4,172,170	\$22.47	\$0.40
12/18/2019	5,604,083	\$22.74	\$0.27
12/19/2019	3,888,618	\$22.71	-\$0.03
12/20/2019	10,967,996	\$22.62	-\$0.09
12/23/2019	22,717,510	\$26.53	\$3.91
12/24/2019	5,840,970	\$26.17	-\$0.36
12/26/2019	4,982,752	\$26.27	\$0.10
12/27/2019	4,094,774	\$26.12	-\$0.15

Exhibit 3B**Apache Corporation****Closing Price and Volume**

Source: Bloomberg

Date	Volume	Closing Price	Price Change
12/30/2019	5,445,301	\$25.50	-\$0.62
12/31/2019	3,349,386	\$25.59	\$0.09
1/2/2020	3,265,529	\$25.36	-\$0.23
1/3/2020	5,940,788	\$25.69	\$0.33
1/6/2020	4,471,810	\$25.64	-\$0.05
1/7/2020	37,100,071	\$32.51	\$6.87
1/8/2020	13,506,968	\$32.73	\$0.22
1/9/2020	7,590,118	\$32.60	-\$0.13
1/10/2020	4,642,751	\$32.38	-\$0.22
1/13/2020	4,581,507	\$32.01	-\$0.37
1/14/2020	6,103,153	\$33.59	\$1.58
1/15/2020	4,440,301	\$33.54	-\$0.05
1/16/2020	4,458,079	\$33.10	-\$0.44
1/17/2020	4,551,822	\$32.67	-\$0.43
1/21/2020	5,215,858	\$31.74	-\$0.93
1/22/2020	4,710,746	\$30.87	-\$0.87
1/23/2020	4,816,342	\$30.27	-\$0.60
1/24/2020	3,472,111	\$29.98	-\$0.29
1/27/2020	4,242,846	\$28.85	-\$1.13
1/28/2020	4,140,836	\$28.73	-\$0.12
1/29/2020	4,514,596	\$28.09	-\$0.64
1/30/2020	3,922,485	\$28.18	\$0.09
1/31/2020	5,312,463	\$27.44	-\$0.74
2/3/2020	4,022,412	\$27.56	\$0.12
2/4/2020	4,419,930	\$28.14	\$0.58
2/5/2020	5,835,341	\$28.90	\$0.76
2/6/2020	3,738,887	\$28.94	\$0.04
2/7/2020	3,167,554	\$28.11	-\$0.83
2/10/2020	3,010,302	\$27.97	-\$0.14
2/11/2020	2,070,366	\$28.17	\$0.20
2/12/2020	3,219,753	\$28.48	\$0.31
2/13/2020	3,498,215	\$27.92	-\$0.56
2/14/2020	4,292,301	\$27.36	-\$0.56
2/18/2020	2,974,564	\$28.11	\$0.75
2/19/2020	2,951,182	\$28.47	\$0.36
2/20/2020	2,347,067	\$28.58	\$0.11
2/21/2020	3,148,467	\$28.40	-\$0.18
2/24/2020	3,025,812	\$26.75	-\$1.65
2/25/2020	4,462,310	\$25.50	-\$1.25
2/26/2020	5,516,308	\$24.43	-\$1.07
2/27/2020	8,816,996	\$25.07	\$0.64
2/28/2020	10,240,481	\$24.92	-\$0.15
3/2/2020	8,986,968	\$25.52	\$0.60
3/3/2020	7,364,266	\$24.99	-\$0.53
3/4/2020	4,376,244	\$25.13	\$0.14
3/5/2020	5,725,451	\$24.34	-\$0.79
3/6/2020	10,198,118	\$20.70	-\$3.64
3/9/2020	28,073,151	\$9.55	-\$11.15
3/10/2020	22,820,560	\$10.79	\$1.24

Exhibit 3B**Apache Corporation****Closing Price and Volume**

Source: Bloomberg

Date	Volume	Closing Price	Price Change
3/11/2020	19,683,329	\$8.25	-\$2.54
3/12/2020	19,844,699	\$7.76	-\$0.49
3/13/2020	24,978,844	\$8.07	\$0.31
3/16/2020	18,546,781	\$5.46	-\$2.61
3/17/2020	19,718,042	\$4.46	-\$1.00
3/18/2020	16,461,785	\$4.44	-\$0.02
3/19/2020	14,529,962	\$4.95	\$0.51
3/20/2020	17,519,837	\$4.83	-\$0.12
3/23/2020	14,154,698	\$4.31	-\$0.52
3/24/2020	16,021,854	\$5.58	\$1.27
3/25/2020	19,289,724	\$5.89	\$0.31
3/26/2020	18,500,603	\$5.76	-\$0.13
3/27/2020	18,508,836	\$4.86	-\$0.90
3/30/2020	26,494,596	\$4.11	-\$0.75
3/31/2020	31,240,233	\$4.18	\$0.07
4/1/2020	22,611,167	\$4.02	-\$0.16
4/2/2020	53,257,953	\$4.69	\$0.67
4/3/2020	51,801,390	\$5.38	\$0.69
4/6/2020	28,007,901	\$5.87	\$0.49
4/7/2020	39,030,522	\$6.52	\$0.65
4/8/2020	35,954,754	\$7.58	\$1.06
4/9/2020	92,823,757	\$8.20	\$0.62
4/13/2020	35,821,075	\$8.38	\$0.18
4/14/2020	26,955,155	\$8.08	-\$0.30
4/15/2020	24,475,585	\$7.94	-\$0.14
4/16/2020	13,094,972	\$7.49	-\$0.45
4/17/2020	26,718,184	\$8.49	\$1.00
4/20/2020	26,625,858	\$8.48	-\$0.01
4/21/2020	22,556,474	\$8.57	\$0.09
4/22/2020	26,465,997	\$9.42	\$0.85
4/23/2020	38,582,969	\$10.50	\$1.08
4/24/2020	40,004,004	\$10.69	\$0.19
4/27/2020	25,852,680	\$10.50	-\$0.19
4/28/2020	19,229,589	\$10.67	\$0.17
4/29/2020	35,120,986	\$13.05	\$2.38
4/30/2020	39,879,476	\$13.08	\$0.03
5/1/2020	24,359,528	\$11.28	-\$1.80
5/4/2020	18,185,498	\$12.06	\$0.78
5/5/2020	26,477,415	\$11.78	-\$0.28
5/6/2020	20,242,475	\$11.61	-\$0.17
5/7/2020	19,899,261	\$11.88	\$0.27
5/8/2020	19,479,257	\$12.45	\$0.57
5/11/2020	14,496,250	\$12.03	-\$0.42
5/12/2020	14,729,224	\$11.79	-\$0.24
5/13/2020	17,266,934	\$10.73	-\$1.06
5/14/2020	20,150,293	\$10.36	-\$0.37
5/15/2020	18,137,526	\$10.61	\$0.25
5/18/2020	22,513,669	\$11.92	\$1.31
5/19/2020	14,586,411	\$11.36	-\$0.56

Exhibit 3B**Apache Corporation****Closing Price and Volume**

Source: Bloomberg

Date	Volume	Closing Price	Price Change
5/20/2020	15,601,086	\$11.95	\$0.59
5/21/2020	18,807,390	\$12.05	\$0.10
5/22/2020	10,415,806	\$12.17	\$0.12
5/26/2020	15,215,088	\$12.71	\$0.54
5/27/2020	16,486,997	\$12.58	-\$0.13
5/28/2020	14,623,362	\$11.87	-\$0.71
5/29/2020	47,936,768	\$10.79	-\$1.08
6/1/2020	24,904,107	\$11.73	\$0.94
6/2/2020	14,175,642	\$12.23	\$0.50
6/3/2020	16,115,876	\$12.53	\$0.30
6/4/2020	16,043,508	\$13.00	\$0.47
6/5/2020	36,336,841	\$16.07	\$3.07
6/8/2020	29,519,921	\$17.73	\$1.66
6/9/2020	14,750,831	\$16.53	-\$1.20
6/10/2020	15,456,788	\$14.83	-\$1.70
6/11/2020	17,749,364	\$12.79	-\$2.04

Exhibit 4**Apache Corporation****Volume Analysis**

Source: Bloomberg

Date	Weekly Volume	Dollar Volume of Trades	Volume as % of Shares Outstanding
9/16/2016	28,916,017	\$1,685,361,581	7.62%
9/23/2016	27,216,674	\$1,632,506,747	7.17%
9/30/2016	29,526,653	\$1,849,625,916	7.78%
10/7/2016	19,970,449	\$1,276,553,358	5.26%
10/14/2016	16,973,323	\$1,061,892,048	4.47%
10/21/2016	17,888,144	\$1,126,080,160	4.71%
10/28/2016	14,322,211	\$877,243,562	3.77%
11/4/2016	25,324,328	\$1,450,830,325	6.67%
11/11/2016	17,013,959	\$981,896,793	4.48%
11/18/2016	17,770,152	\$1,100,757,822	4.68%
11/25/2016	10,922,758	\$688,540,625	2.88%
12/2/2016	22,086,052	\$1,409,691,848	5.82%
12/9/2016	16,200,208	\$1,076,242,693	4.27%
12/16/2016	19,247,444	\$1,282,126,153	5.07%
12/23/2016	8,717,061	\$581,121,799	2.30%
12/30/2016	7,420,120	\$477,297,517	1.96%
1/6/2017	12,905,544	\$819,337,628	3.40%
1/13/2017	11,128,876	\$700,830,315	2.93%
1/20/2017	11,096,623	\$694,171,657	2.92%
1/27/2017	17,576,905	\$1,082,412,988	4.63%
2/3/2017	19,770,723	\$1,168,415,259	5.21%
2/10/2017	15,778,656	\$902,452,441	4.16%
2/17/2017	19,615,752	\$1,091,422,042	5.17%
2/24/2017	25,003,731	\$1,345,028,319	6.59%
3/3/2017	20,305,857	\$1,066,917,459	5.35%
3/10/2017	24,190,009	\$1,221,297,920	6.37%
3/17/2017	20,321,308	\$1,031,853,240	5.35%
3/24/2017	14,595,041	\$735,628,923	3.84%
3/31/2017	20,913,864	\$1,080,827,972	5.50%
4/7/2017	17,211,631	\$897,049,257	4.52%
4/13/2017	15,253,223	\$815,183,973	4.01%
4/21/2017	19,304,233	\$964,852,287	5.08%
4/28/2017	17,981,388	\$882,208,954	4.73%
5/5/2017	22,932,429	\$1,112,966,437	6.03%
5/12/2017	14,839,272	\$754,483,730	3.90%
5/19/2017	15,509,994	\$785,228,173	4.08%
5/26/2017	15,971,167	\$784,660,025	4.20%
6/2/2017	15,070,591	\$710,226,918	3.96%
6/9/2017	22,308,071	\$1,054,135,120	5.86%
6/16/2017	19,948,384	\$969,067,032	5.24%
6/23/2017	26,177,563	\$1,222,817,047	6.88%
6/30/2017	13,539,140	\$637,275,665	3.56%
7/7/2017	11,412,592	\$528,269,043	3.00%
7/14/2017	17,167,792	\$816,887,430	4.51%
7/21/2017	18,238,182	\$894,237,707	4.79%
7/28/2017	15,939,367	\$786,071,278	4.19%
8/4/2017	27,621,419	\$1,266,744,586	7.25%
8/11/2017	16,985,390	\$738,576,674	4.46%
8/18/2017	16,731,983	\$683,889,989	4.39%
8/25/2017	15,174,392	\$605,805,267	3.98%
9/1/2017	19,666,913	\$765,612,229	5.16%
9/8/2017	13,649,072	\$545,069,252	3.58%
9/15/2017	16,572,630	\$690,789,976	4.35%
9/22/2017	11,936,867	\$511,338,709	3.13%

Share Turnover	
Calendar Days	1,283
Time Period (years)	3.513
Shares Out at End of Class Period	377,316,000
Total Volume in Class Period	3,971,163,603
Annualized Share Turnover	299.6%

Shares Outstanding	
8/4/2016	379,423,000
11/4/2016	379,429,000
2/24/2017	379,687,000
3/28/2017	380,370,000
5/5/2017	380,437,000
8/4/2017	380,934,000
11/2/2017	381,000,000
11/3/2017	380,943,000
2/22/2018	381,000,000
2/23/2018	381,448,000
4/9/2018	382,147,000
5/3/2018	382,154,000
8/2/2018	382,486,000
11/1/2018	379,544,000
3/1/2019	375,406,000
4/10/2019	375,907,000
5/3/2019	375,921,000
8/2/2019	375,959,000
10/31/2019	376,036,000
2/28/2020	377,316,000
4/3/2020	377,418,000
5/7/2020	377,426,000
7/30/2020	377,459,000
11/5/2020	377,478,000

Exhibit 4**Apache Corporation****Volume Analysis**

Source: Bloomberg

Date	Weekly Volume	Dollar Volume of Trades	Volume as % of Shares Outstanding
9/29/2017	16,355,518	\$747,742,063	4.29%
10/6/2017	13,130,459	\$596,013,424	3.45%
10/13/2017	27,412,679	\$1,163,582,571	7.20%
10/20/2017	19,837,583	\$839,977,989	5.21%
10/27/2017	21,324,633	\$854,748,744	5.60%
11/3/2017	14,578,598	\$610,251,396	3.83%
11/10/2017	19,260,631	\$868,218,384	5.06%
11/17/2017	11,841,815	\$491,792,177	3.11%
11/24/2017	7,922,831	\$327,198,706	2.08%
12/1/2017	16,166,632	\$678,108,512	4.24%
12/8/2017	12,910,576	\$534,598,707	3.39%
12/15/2017	21,423,270	\$851,452,189	5.62%
12/22/2017	16,753,907	\$698,816,542	4.40%
12/29/2017	9,565,528	\$409,029,104	2.51%
1/5/2018	16,522,997	\$755,809,724	4.34%
1/12/2018	23,144,938	\$1,054,076,005	6.08%
1/19/2018	13,382,036	\$620,404,423	3.51%
1/26/2018	20,501,183	\$980,611,519	5.38%
2/2/2018	23,235,175	\$1,035,176,296	6.10%
2/9/2018	26,562,748	\$1,042,049,419	6.97%
2/16/2018	22,532,887	\$857,314,705	5.92%
2/23/2018	31,656,509	\$1,140,429,196	8.30%
3/2/2018	29,897,896	\$1,038,320,434	7.84%
3/9/2018	20,634,712	\$723,885,799	5.41%
3/16/2018	24,148,439	\$861,653,163	6.33%
3/23/2018	28,252,287	\$1,037,456,439	7.41%
3/29/2018	24,341,733	\$917,236,696	6.38%
4/6/2018	30,148,889	\$1,151,929,433	7.90%
4/13/2018	24,363,187	\$961,623,923	6.38%
4/20/2018	21,823,054	\$911,100,040	5.71%
4/27/2018	20,853,870	\$852,173,345	5.46%
5/4/2018	22,518,538	\$897,521,295	5.89%
5/11/2018	18,187,343	\$740,012,223	4.76%
5/18/2018	13,997,882	\$606,035,819	3.66%
5/25/2018	15,384,206	\$639,587,976	4.03%
6/1/2018	13,417,146	\$532,308,507	3.51%
6/8/2018	22,169,634	\$897,585,287	5.80%
6/15/2018	32,176,654	\$1,382,325,915	8.42%
6/22/2018	29,080,286	\$1,288,824,784	7.61%
6/29/2018	19,803,069	\$896,003,192	5.18%
7/6/2018	13,460,387	\$616,862,485	3.52%
7/13/2018	15,670,100	\$750,628,471	4.10%
7/20/2018	14,048,547	\$631,749,230	3.68%
7/27/2018	10,878,990	\$491,347,268	2.85%
8/3/2018	17,074,169	\$769,011,159	4.46%
8/10/2018	19,629,301	\$871,832,901	5.13%
8/17/2018	13,160,325	\$560,821,239	3.44%
8/24/2018	9,080,401	\$389,063,092	2.37%
8/31/2018	11,946,494	\$522,635,281	3.12%
9/7/2018	8,674,614	\$374,580,329	2.27%
9/14/2018	12,094,194	\$539,744,848	3.16%
9/21/2018	16,656,105	\$766,883,281	4.35%
9/28/2018	16,592,787	\$788,559,533	4.34%
10/5/2018	14,302,725	\$692,988,888	3.74%

Exhibit 4**Apache Corporation****Volume Analysis**

Source: Bloomberg

Date	Weekly Volume	Dollar Volume of Trades	Volume as % of Shares Outstanding
10/12/2018	21,676,635	\$1,010,195,482	5.67%
10/19/2018	17,306,325	\$750,002,913	4.52%
10/26/2018	17,028,814	\$662,325,694	4.45%
11/2/2018	30,053,241	\$1,101,675,915	7.92%
11/9/2018	22,661,446	\$841,300,317	5.97%
11/16/2018	23,404,163	\$850,024,907	6.17%
11/23/2018	14,317,144	\$507,561,957	3.77%
11/30/2018	21,269,156	\$749,909,544	5.60%
12/7/2018	18,094,069	\$622,444,930	4.77%
12/14/2018	32,481,193	\$1,004,256,474	8.56%
12/21/2018	36,898,181	\$1,041,466,517	9.72%
12/28/2018	20,968,509	\$556,970,741	5.52%
1/4/2019	18,626,485	\$506,629,870	4.91%
1/11/2019	23,764,413	\$721,170,531	6.26%
1/18/2019	27,015,097	\$853,396,371	7.12%
1/25/2019	17,272,997	\$545,979,224	4.55%
2/1/2019	23,851,701	\$782,815,082	6.28%
2/8/2019	21,973,686	\$696,689,831	5.79%
2/15/2019	21,613,571	\$692,193,676	5.69%
2/22/2019	19,434,700	\$651,262,720	5.12%
3/1/2019	23,738,940	\$794,178,436	6.32%
3/8/2019	19,985,139	\$659,295,016	5.32%
3/15/2019	22,485,607	\$761,071,086	5.99%
3/22/2019	17,793,307	\$625,896,873	4.74%
3/29/2019	15,686,359	\$549,583,591	4.18%
4/5/2019	22,789,542	\$778,971,671	6.07%
4/12/2019	18,762,412	\$672,184,700	4.99%
4/18/2019	15,240,454	\$553,312,982	4.05%
4/26/2019	20,655,588	\$726,258,995	5.49%
5/3/2019	23,199,079	\$724,236,089	6.17%
5/10/2019	28,421,443	\$874,611,693	7.56%
5/17/2019	14,545,473	\$448,028,756	3.87%
5/24/2019	19,483,809	\$561,877,118	5.18%
5/31/2019	20,050,943	\$531,180,955	5.33%
6/7/2019	25,479,951	\$717,419,126	6.78%
6/14/2019	24,194,746	\$683,752,568	6.44%
6/21/2019	17,464,286	\$506,540,215	4.65%
6/28/2019	15,958,720	\$459,155,643	4.25%
7/5/2019	19,358,682	\$534,877,342	5.15%
7/12/2019	27,166,819	\$731,161,370	7.23%
7/19/2019	33,651,476	\$823,708,013	8.95%
7/26/2019	19,353,960	\$468,868,472	5.15%
8/2/2019	29,307,068	\$704,631,890	7.80%
8/9/2019	25,400,148	\$572,598,273	6.76%
8/16/2019	41,293,166	\$874,693,762	10.98%
8/23/2019	25,471,470	\$545,530,529	6.78%
8/30/2019	21,496,485	\$460,179,333	5.72%
9/6/2019	17,830,623	\$394,182,649	4.74%
9/13/2019	23,851,007	\$569,491,448	6.34%
9/20/2019	50,992,802	\$1,360,322,746	13.56%
9/27/2019	23,230,248	\$595,376,836	6.18%
10/4/2019	24,569,377	\$578,427,097	6.54%
10/11/2019	27,238,358	\$567,428,429	7.25%
10/18/2019	33,909,929	\$749,225,507	9.02%

Exhibit 4**Apache Corporation****Volume Analysis**

Source: Bloomberg

Date	Weekly Volume	Dollar Volume of Trades	Volume as % of Shares Outstanding
10/25/2019	32,320,202	\$731,454,335	8.60%
11/1/2019	31,693,988	\$709,251,753	8.43%
11/8/2019	28,860,972	\$696,762,968	7.68%
11/15/2019	21,161,006	\$500,822,325	5.63%
11/22/2019	18,218,952	\$419,073,647	4.85%
11/29/2019	16,555,031	\$381,315,600	4.40%
12/6/2019	65,975,676	\$1,260,139,656	17.55%
12/13/2019	31,362,538	\$664,681,531	8.34%
12/20/2019	29,742,036	\$670,351,451	7.91%
12/27/2019	37,636,006	\$993,406,117	10.01%
1/3/2020	18,001,004	\$459,998,622	4.79%
1/10/2020	67,311,718	\$2,160,633,703	17.90%
1/17/2020	24,134,862	\$796,857,084	6.42%
1/24/2020	18,215,057	\$560,856,622	4.84%
1/31/2020	22,133,226	\$624,496,939	5.89%
2/7/2020	21,184,124	\$601,119,193	5.63%
2/14/2020	16,090,937	\$449,326,441	4.28%
2/21/2020	11,421,280	\$324,130,783	3.04%
2/28/2020	32,061,907	\$805,727,657	8.50%
3/6/2020	36,651,047	\$873,813,962	9.71%
3/13/2020	115,400,583	\$1,032,294,034	30.58%
Average	21,509,586	\$804,396,460	5.7%
Minimum	7,420,120	\$324,130,783	2.0%
Maximum	115,400,583	\$2,160,633,703	30.6%
Total	3,936,254,318	\$147,204,552,266	

Exhibit 5A**Apache Corporation****Number of Analyst Reports by Company**

Source: Refinitiv Eikon

Abridged Search with Company Name as Primary Ticker Only

Number	Analyst Name	Reports
1	Wolfe Research	185
2	Seaport Global Securities LLC	82
3	RBC Capital Markets	72
4	Scotiabank GBM	70
5	JPMorgan	48
6	EVERCORE ISI	45
7	Barclays	44
8	Cowen and Company	39
9	BMO Capital Markets	37
10	Credit Suisse	36
11	CFRA Equity Research	35
12	Societe Generale	34
13	BofA Global Research	32
14	Stock Traders Daily Research	30
15	Stephens Inc.	29
16	UBS Equities	29
17	Morningstar, Inc.	27
18	Zacks Equity Research	27
19	Macquarie Research	22
20	Sadif Analytics Prime	22
21	BuySellSignals Research	21
22	Jefferies	21
23	Wright Reports	21
24	MUFG Securities Americas Inc.	20
25	Piper Sandler Companies	19
26	Wells Fargo Securities, LLC	17
27	GlobalData	15
28	Morgan Stanley	15
29	Truist Securities	15
30	ValuEngine, Inc	14
31	Argus Research Corporation	13
32	Acquisdata	9
33	Deutsche Bank	9
34	Vermilion Technical Research	9
35	Validea	8
36	Corporate Watchdog Reports	7
37	KLR Group	7
38	Marktfeld	7
39	Morningstar Credit Research	7
40	NatAlliance	6
41	JPMorgan Econ & FI	5

Exhibit 5A**Apache Corporation****Number of Analyst Reports by Company**

Source: Refinitiv Eikon

Abridged Search with Company Name as Primary Ticker Only

Number	Analyst Name	Reports
42	MKM Partners	5
43	Plunkett Research, Ltd.	5
44	Susquehanna Financial Group LLLP	4
45	Boston Energy Research	3
46	Carbon Tracker	1
47	Fitch Ratings	1
48	Jefferson Research	1
49	MarketLine	1
50	Scarsdale Equities LLC (Historical)	1
51	Streetwise Reports	1
52	The Business Research Company	1
	Total Analyst Reports in Class Period	1,234

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
9/6/2016	Wolfe Research	Oil & Gas - Sunday Sankey
9/6/2016	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth: Apache in the Delaware - Tonto, Jump on It...
9/7/2016	BofA Global Research	Apache Corp: Apache's new combo play: capital allocation vs oil plays and infrastructure key questions
9/7/2016	Credit Suisse	APA: Unveils New, Large Wet Gas Play in Texas, Drills Better Wells in Midland
9/7/2016	RBC Capital Markets	Apache Corporation - APA - New Permian Resource Play Dubbed "Alpine High"
9/7/2016	Cowen and Company	Alpine High
9/7/2016	Seaport Global Securities LLC	SGS Dirty Energy Daily
9/7/2016	Piper Sandler Companies	Announces New Delaware Basin Play
9/7/2016	Wells Fargo Securities, LLC	APA: Thoughts On Alpine High Discovery
9/7/2016	Macquarie Research	Apache Corp (Neutral) - Alpine High to Start Re-Rate Debate
9/7/2016	UBS Equities	Apache Corporation "Unveils New Gassy Play in the Southern Delaware Basin & ..."
9/8/2016	Credit Suisse	APA: Alpine High Has Potential To Be A World Class Resource
9/8/2016	Wolfe Research	Oil & Gas - Q: What Price of Oil is Discounted in the Stocks? A:
9/8/2016	RBC Capital Markets	Apache Corporation - Lofty Prospects for Alpine High
9/8/2016	Societe Generale	Apache Corp (Buy, TP=\$65) - Corporate news - An organic, low cost, 15.5 BBOE Delaware resource capture could cause Street sentiment to change - J. Herrlin (9p)
9/8/2016	Deutsche Bank	Apache Corp. : Addressing Onshore Resource Depth
9/8/2016	Morgan Stanley	Apache Corp.: Resource Response in Alpine High
9/8/2016	BMO Capital Markets	High on the Alpine
9/11/2016	EVERCORE ISI	Evercore ISI E&P: Stocks Up, Leverage Leads
9/12/2016	Wolfe Research	Oil & Gas - APA: Upgrade to Peer Perform - Alpine Higher Multiple
9/12/2016	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth: Ups and Down
9/12/2016	Wolfe Research	Oil & Gas - Sunday Sankey
9/12/2016	Jefferies	Apache: APA: UNDERPERFORM: Unveils Rich Gas Position in SW Delaware Basin
9/14/2016	KLR Group	Alpine High Discovery Adds Another Leg to the Story
9/15/2016	Morningstar, Inc.	Morningstar APA Updated Star Rating from 15 Sep 2016
9/16/2016	Piper Sandler Companies	Q3'16 Update
9/19/2016	Wolfe Research	Oil and Gas - Large-Cap E&P Target Depth: APC - Dude got Mojo Back: missed you!
9/19/2016	GlobalData	Apache Corporation (APA) - Financial and Strategic SWOT Analysis Review
9/20/2016	Seaport Global Securities LLC	SGS Well Watcher: APA, CWEI, FANG, JONE, PE, REI and more
9/22/2016	Wells Fargo Securities, LLC	APA: Model Update
9/23/2016	Morgan Stanley	Apache Corp.: Permian Rising: Alpine High Changes APA's Game
9/26/2016	Wolfe Research	Oil & Gas - Sunday Sankey
9/26/2016	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth: DVN - Gas at \$3.00... (Re)Frackin the Whip
9/26/2016	MUFG Securities Americas Inc.	Initiating Coverage with Neutral Rating; How Long Does it Take an Onion to Ripen?
9/26/2016	UBS Equities	Apache Corporation "Highlights from Meetings with APA Management" (Neutral)
9/29/2016	Wolfe Research	Oil & Gas - The Midweek Market: Thanksgiving for Hamm
9/29/2016	Morningstar, Inc.	Morningstar OPEC Cuts, U.S. E&Ps Drill: Our Oil Price Outlook Remains Unchanged
9/29/2016	Morningstar Credit Research	Morningstar OPEC Cuts, U.S. E&Ps Drill: Our Oil Price Outlook Remains Unchanged
9/29/2016	Morningstar Credit Research	Morningstar Apache's maintaining its strategy to live within cash flow generated assuming \$35 oil.

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
9/30/2016	Wolfe Research	Oil & Gas - Global Oil: You Beta, You Beta, You Bet
10/3/2016	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth: OPEC to Texas - "Drill baby drill!"
10/3/2016	Wolfe Research	Oil & Gas - Sunday Sankey
10/5/2016	Societe Generale	Apache Corp (Buy, TP=\$71) - European NDR - Long history, but new corporate strategy not fully appreciated by Street. New TP \$71 - J. Herrlin (20p)
10/10/2016	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth: NBL Deeds That are Concealed are Most Esteemed
10/10/2016	Wolfe Research	Oil & Gas - Sunday Sankey
10/10/2016	Wright Reports	Wright Investors Service Comprehensive Report for Apache Corporation
10/11/2016	Vermilion Technical Research	Compass: WTI, Brent & energy stocks are bottoming -- increase exposure; stay overweight Tech and Financials; charts: AMTD, APA, APC, AROC, BANF, BOKF, C, CFR, CLR, CXO, DVN, EOG, EXTN, FET, FFIN, GTLS, JPM, KRE, LPI, MS, NR, PE, PXD, RICE, RSPP, SCHW...
10/11/2016	Seaport Global Securities LLC	SGS Well Watcher: APA, ECR, JONE, PQ, RRC and SN
10/12/2016	Wolfe Research	Oil & Gas - Brexit: A Personal View
10/13/2016	Wolfe Research	Oil & Gas - Global Oil & Gas: Is This the Real Life? Is This Just 3Q Preview & Update
10/14/2016	EVERCORE ISI	Onshore Activity Ramp the Central 3Q Theme
10/17/2016	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth: What to Watch and Who to Follow for Q3 EPS Season
10/18/2016	Wells Fargo Securities, LLC	E&P: Adjusting Estimates And Valuation Ranges
10/19/2016	JPMorgan	Apache Corp : Model Update
10/20/2016	Seaport Global Securities LLC	Estimates Update
10/20/2016	Seaport Global Securities LLC	SGS Energy Daily (10-20-16) - DOE inventories, Warm November weather, APA, BBG, CHK, FTI, GST, HAL, NFX, RICE
10/24/2016	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth: COP - Back on Duty, Unconventional Overview
10/24/2016	Wolfe Research	Oil & Gas - Sunday Sankey
10/25/2016	Wolfe Research	Oil & Gas - Global Oil and Gas: A Conceptual Approach to Q3 EPS
10/26/2016	Credit Suisse	APA: Updated Deep Dive on Alpine High
10/27/2016	Wolfe Research	Oil & Gas - Global Oil: Deja Vu All Over Again in the Permian? - The Midweek Market
10/31/2016	Wolfe Research	Oil & Gas - Sunday Sankey
10/31/2016	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth: Don't Look Back in Anger - 3Q Compendium
10/31/2016	RBC Capital Markets	Apache Corporation - APA - 3Q16 Earnings Preview
11/3/2016	Morningstar, Inc.	Morningstar APA Updated Star Rating from 03 Nov 2016
11/3/2016	CFRA Equity Research	Apache Corp
11/3/2016	BofA Global Research	Apache Corp: 3Q16 Earnings first look: still early days in the Alpine High
11/3/2016	Deutsche Bank	Apache Corp. : Alpine High Not Quite High Enough for Market Expectations
11/3/2016	Societe Generale	Apache Corp (Buy, TP=\$71) - Quarterly results - 3Q16: Adjusted EPS beat and output in line with plans, and DCF> Cap-ex. - J. Herrlin (1p)
11/3/2016	Morgan Stanley	Apache Corp.: 3Q16: Focus Remains on Alpine High
11/3/2016	JPMorgan	Apache Corp : 3Q16 Flash - ALERT
11/3/2016	EVERCORE ISI	The Fog of War
11/3/2016	Barclays	APA Beats Volume Forecasts in 3Q, Maintains 2016 Capex and Production Outlook
11/3/2016	BMO Capital Markets	3Q Splits the Difference Between Us and Consensus

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
11/3/2016	RBC Capital Markets	Apache Corporation - APA - 3Q16 CFPS Slight Miss; Adding more rigs to the Permian
11/3/2016	Piper Sandler Companies	Q3'16 Quick Look: Are Alpine High Well Results Enough?
11/3/2016	Cowen and Company	Q3 Earnings at a Glance
11/3/2016	ValuEngine, Inc	ValuEngine Rating and Forecast Report for APA
11/3/2016	UBS Equities	Apache Corporation "Alpine High Top Priority in 2017, Underwhelming 3Q ..."
11/3/2016	UBS Equities	Apache Corporation "3Q EPS and Production Beat; Underwhelming Alpine High ..."
11/4/2016	RBC Capital Markets	Apache Corporation - Carrying the Load at Alpine High
11/4/2016	Wolfe Research	Oil & Gas - APA: 3Q16 - Bring Me a Higher Love
11/4/2016	Barclays	Apache Corp.: No Major Changes to APA's Outlook
11/4/2016	Seaport Global Securities LLC	SGS Energy Daily (11-04-16) - APA, ATW, BBG, CHK, CLR, CPE, CQP/LNG, CRZO, CWEI, ECR, EGN, FI, FTK, GPOR, GST, HOS, JONE, LPI, MCF, MRO, NE, NGS, PARR, PDCE, PE, RICE, RIG, SYRG, TESO, UNT, WLB, WPX, WTI, XDC, XEC
11/4/2016	EVERCORE ISI	First Look - Nov 04 2016
11/4/2016	BofA Global Research	Apache Corp: 3Q16 Earnings recap: return to growth from 2Q17, but Alpine High skews mix to US gas
11/4/2016	Credit Suisse	APA: Wet Gas Marcellus in Texas Seems Larger Than Consensus, Accelerating Oily Midland
11/4/2016	Wells Fargo Securities, LLC	APA: Model Update
11/7/2016	Morningstar, Inc.	Morningstar Apache's Production Declines Continue During Q3 on Lower Capital Spending; Balance Sheet Solid
11/7/2016	Morningstar Credit Research	Morningstar Apache's Production Declines Continue During Q3 on Lower Capital Spending; Balance Sheet Solid
11/7/2016	MUFG Securities Americas Inc.	Ready to Ramp in 2017
11/7/2016	Wolfe Research	Oil & Gas - Sunday Sankey
11/7/2016	Seaport Global Securities LLC	SGS Energy Daily (11-07-16) - APA, BBG, CLR, CRZO, DVN, ECR, EGN, GST, MRO, NE, NFX, PE, PXD, RSPP, SN, SYRG, TESO, WPX, XDC, XEC
11/7/2016	EVERCORE ISI	Level of Complexity Increasing
11/7/2016	Acquisdata	Apache Corporation (NYSE- APA)
11/9/2016	BuySellSignals Research	Apache thirty-ninth best performer of S&P 500 Index in 2016
11/11/2016	Morningstar, Inc.	Morningstar Oil and Gas Sector Likely to Fare Well Under Trump Administration
11/11/2016	Morningstar Credit Research	Morningstar Oil and Gas Sector Likely to Fare Well Under Trump Administration
11/11/2016	KLR Group	Forecasting Onshore North America Resumes Growth in 2H/17
11/11/2016	BMO Capital Markets	3Q Earnings Recap; Raising Estimates on Increased Activity
11/14/2016	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth: COP - I See a Red Door and I Want it Painted Black
11/14/2016	Wolfe Research	Oil & Gas - Sunday Sankey
11/14/2016	Sadif Analytics Prime	Is Apache Corporation In Need of A Cure?
11/15/2016	Societe Generale	Apache Corp (Buy, TP=\$71) - EPS upgrade - Model Update - J. Herrlin (1p)
11/15/2016	Credit Suisse	Around The Clock: 15 November 2016
11/15/2016	Credit Suisse	APA: Alpine High Underestimated
11/21/2016	JPMorgan	Apache Corp : Model Update
11/21/2016	Piper Sandler Companies	Model Update for Q3'16 Earnings
11/21/2016	Wolfe Research	Oil & Gas - Sunday Sankey
11/21/2016	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth: NBL - A Little Leviathan, a Little Delaware... Where to?
11/21/2016	Wright Reports	Wright Investors Service Comprehensive Report for Apache Corporation

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
11/28/2016	Wolfe Research	Oil & Gas - Global Oil: Pick OPEC of Pickled Peppers
11/29/2016	Wolfe Research	Oil & Gas - OPEC: Saudi - Pivot or Gambit, "Oil Friendships are Greasy" - Calouste Gulbenkian
12/5/2016	Wolfe Research	Oil & Gas - Sunday Sankey
12/5/2016	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth: OPEC to Wolfe - Drill Baby Drill into the Corporate Analysis
12/5/2016	GlobalData	Apache Corporation (APA) - Financial and Strategic SWOT Analysis Review
12/9/2016	Seaport Global Securities LLC	Price Target and Estimates Update
12/12/2016	Wolfe Research	Oil & Gas - Sunday Sankey
12/12/2016	Wolfe Research	Oil & Gas - Global Oil: The Path of Sound Credence is Through the Thick Forest of Skepticism
12/13/2016	Morningstar, Inc.	Morningstar Nothing Novel About It: OPEC Adds a Twist to the Plot, but the Ending Is Unchanged
12/13/2016	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth: One Step Closer to the Hedge
12/16/2016	Wells Fargo Securities, LLC	E&P: Downgrading APA, CLR, CRZO, CXO, NFX, RSPP, WLL, XEC
12/19/2016	Wolfe Research	Oil & Gas - Sunday Sankey
12/19/2016	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth: I've Been Thinking too Much...
12/22/2016	Argus Research Corporation	Argus Analyst Report, APA
12/30/2016	BuySellSignals Research	Apache soars 43% in FY 2016, outperforming 84% of the market
1/2/2017	Wright Reports	Wright Investors Service Comprehensive Report for Apache Corporation
1/3/2017	Wolfe Research	Oil & Gas - Large-Cap E&P: Target Depth - To 2017 and Beyond: Upgrade Large-Cap E&P to Overweight
1/3/2017	Wolfe Research	Oil & Gas - Sunday Sankey
1/6/2017	Piper Sandler Companies	New Alpine High Well Results from Updated APA Presentation
1/9/2017	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth: Upgrade MRO, Downgrade OXY, the Fox and the Hare
1/9/2017	Wolfe Research	Oil & Gas - Sunday Sankey
1/11/2017	Societe Generale	Apache Corp (Buy, TP=\$73) - 12m target upgrade - Increasing TP to \$73, which equates to a P/DCFPS multiple of 8.7x - J. Herrlin (1p)
1/17/2017	Wolfe Research	Oil & Gas - Large-Cap E&P: Target Depth - Liza, Payara and Snoek Oh My
1/17/2017	Jefferies	2017 Outlook; Best Ideas and Key Themes
1/17/2017	Wolfe Research	Oil & Gas - Sunday Sankey
1/18/2017	UBS Equities	Oil & Gas Exploration and Production "Revising Oil & Gas Prices; Downgrade ..."
1/20/2017	Wolfe Research	Oil & Gas - Global Oil & Gas 4Q Earnings Preview: Much Has Been Given Us, and Much Will Rightfully Be Expected From Us
1/23/2017	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth: DVN STACK Spacing Pilots and 10k' Laterals
1/26/2017	Barclays	North America Oil & Gas: E&P (Large/Mid-Cap): 4Q Preview: Oil Service Costs and Efficiency Gains Will Be Prominent
1/29/2017	Wells Fargo Securities, LLC	E&P: Adjusting Estimates And Valuation Ranges
1/30/2017	Wolfe Research	Oil & Gas - Sunday Sankey
1/30/2017	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth: Inflation! HES Bakken Costs & Unconventional Cost Challenges
1/30/2017	Seaport Global Securities LLC	Estimates Update
1/30/2017	Seaport Global Securities LLC	SGS Energy Daily (01-30-17) - APA, WPX quick takes; HP update; BHI update; Q4 NGL pricing comments; Rig Count Reckoning; MLP weekly; E&P and OFS comps
2/2/2017	Macquarie Research	Apache Corp (Downgrade to Underperform) - Upside Limited by Delaware Basin Peer Growth
2/6/2017	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth: APC - Questions Into March Guidance Call
2/6/2017	Wolfe Research	Oil & Gas - Sunday Sankey

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
2/8/2017	Wolfe Research	Oil & Gas - Energy Policy: Questions for Our DC Trip
2/9/2017	Morningstar, Inc.	Morningstar APA Updated Star Rating from 08 Feb 2017
2/13/2017	Piper Sandler Companies	New Alpine High Results: Weaker IP Rates, but Further Expanding Play
2/13/2017	Wolfe Research	Oil & Gas - Target Depth: PXD - Evaluating NAV Upside on the Road to a Million a Day
2/13/2017	Wolfe Research	Oil & Gas - Sunday Sankey
2/14/2017	Societe Generale	Apache Corp (Buy, TP=\$73) - Corporate news - Latest Alpine High well results positive, but market reaction surprisingly negative - J. Herrlin (2p)
2/14/2017	BMO Capital Markets	Alpine High Update Advances Understanding, but Rates Take a Step Back
2/14/2017	Wolfe Research	Oil and Gas - DC Energy Regulation & Tax Policy: Drain The Swamp? Like So Much, Easier Said Than Done.
2/14/2017	RBC Capital Markets	Apache Corporation - APA - Alpine High Well Extends the Over-Pressured Wet Gas Window
2/14/2017	Credit Suisse	APA: Alpine High And Midland Update
2/14/2017	Morgan Stanley	US Exploration & Production: New Slides Highlight Plays in Different Stages: Positive NFX, Negative APA
2/14/2017	UBS Equities	Apache Corporation "Disappointing IP Rates & Oil Mix for Latest Batch of ..."
2/20/2017	MarketLine	Apache Corporation – Mergers & Acquisitions (M&A), Partnerships & Alliances and Investment Report
2/21/2017	Credit Suisse	APA: Alpine High Post Vail Update
2/21/2017	Wolfe Research	Oil & Gas - Sunday Sankey
2/21/2017	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth: Earnings and Ops Updates
2/21/2017	RBC Capital Markets	Apache Corporation - APA - 4Q16 Earnings Preview
2/21/2017	Wright Reports	Wright Investors Service Comprehensive Report for Apache Corporation
2/22/2017	Morningstar Credit Research	Morningstar Danger Zone: Coming Shale Growth Poses Major Risks to Oil Prices
2/22/2017	ValuEngine, Inc	ValuEngine Rating and Forecast Report for APA
2/23/2017	RBC Capital Markets	Apache Corporation - Alpine High Impact Should Be Felt by 3Q17
2/23/2017	Societe Generale	Apache Corp (Buy, TP=\$73) - Full-year results - 4Q16 Adj. EPS miss a non-event. 2017 cap-ex + 63% to \$3.1 billion. Growth in 2H. Only Large Cap FCF+ in '16 - J. Herrlin (1p)
2/23/2017	BofA Global Research	Apache Corp: 4Q16 Earnings first look: EPS helped by tax; capex +60% underlines shift to gas
2/23/2017	Piper Sandler Companies	Earnings Conference Call Key Takeaways
2/23/2017	Deutsche Bank	Apache Corp. : Not all barrels are created equal
2/23/2017	Morgan Stanley	Apache Corp.: 4Q16: Light Quarter and 2017 Guide
2/23/2017	JPMorgan	Apache Corp : 4Q16 Flash: 2017 CFO Shortfall Versus Expectations Likely to Weigh on Shares Despite Higher 2018 Volume Guide - ALERT
2/23/2017	Barclays	APA Offers Outlook Through 2018
2/23/2017	EVERCORE ISI	Turning to Growth, Plenty of Questions
2/23/2017	Wells Fargo Securities, LLC	APA: Moderate Growth Outlook
2/23/2017	Cowen and Company	4Q16 Earnings at a Glance
2/23/2017	RBC Capital Markets	Apache Corporation - APA - 4Q16 Miss; More Robust Outlook Through 2018
2/23/2017	BMO Capital Markets	4Q16 and 2017 Production Lower; Alpine High Boosts YE18 Volumes
2/23/2017	Piper Sandler Companies	Q4'16 Quick Look: '17 Production Weaker Than Expected/Provides View Through '18
2/23/2017	Morningstar, Inc.	Morningstar Danger Zone: Coming Shale Growth Poses Major Risks to Oil Prices
2/23/2017	UBS Equities	Apache Corporation "4Q EPS and Production Miss; 2017 Production & Capex ..."
2/24/2017	Wolfe Research	Oil & Gas - Global Oil: End of Week Market - Being Fifty, but Thinking Sixty

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
2/24/2017	Wolfe Research	Oil & Gas - APA: 4Q16 - I Was Free Cash... but Then I Got Totally Alpine High
2/24/2017	BofA Global Research	Apache Corp: 4Q16 Earnings Recap: lowering PO to \$60 on confirmed pivot to gas
2/24/2017	Seaport Global Securities LLC	SGS Energy Daily (02-24-17) - APA, COG, CHK, CLR, CRZO, MTD, OAS, PE, RICE, RRC, SD, SM, SWN, SYRG, WPX, OGS, NBR, NE, PACD, RDC
2/24/2017	UBS Equities	Apache Corporation "4Q EPS and Production Miss; 2017 Production & Capex ..."
2/27/2017	CFRA Equity Research	Apache Corp
2/27/2017	Wolfe Research	Oil & Gas – Large-Cap E&P Target Depth: NGL Overview - Cash Flow Tailwind Through 2018
2/27/2017	Wolfe Research	Oil & Gas - Sunday Sankey
2/27/2017	Credit Suisse	US Large Cap E&P: DVN, APC, CLR, MRO, APA Review; Both DVN and APC Attractive Here
2/27/2017	Wells Fargo Securities, LLC	APA: Model Update
2/28/2017	MUFG Securities Americas Inc.	Still Rebooting: Greenfield Development Being Loaded onto the Apache Program
2/28/2017	Morningstar, Inc.	Morningstar Apache's Production Declines Continue During 4Q on Lower Capital Spending; Growth Imminent, However
2/28/2017	Morningstar Credit Research	Morningstar Apache's Production Declines Continue During 4Q on Lower Capital Spending; Growth Imminent, However
3/2/2017	Barclays	Apache Corp.: Downgrading Apache to Reflect a Reduced Oil Growth Outlook
3/3/2017	GlobalData	Apache Corporation (APA) - Financial and Strategic SWOT Analysis Review
3/6/2017	BuySellSignals Research	Apache twelfth worst performer of S&P 500 Index in 2017
3/6/2017	Wolfe Research	Oil & Gas – Large-Cap E&P Target Depth: Guyana - Multi-FPSO Potential and Implications For HES
3/6/2017	Wolfe Research	Oil & Gas - Sunday Sankey
3/10/2017	Validea	Validea Guru Analysis Report for APA. Analysis using Validea's interpretation of the published quantitative strategies of well-known Wall Street experts including Peter Lynch, Warren Buffett, Ben Graham and Ken Fisher, among others.
3/10/2017	Scotiabank GBM	SHW Morning Line - March 10, 2017
3/10/2017	Scotiabank GBM	Large Cap E&P Estimate Revisions
3/13/2017	Morningstar, Inc.	Morningstar Dropping Coverage of Select Exploration and Production Companies
3/13/2017	Morningstar Credit Research	Morningstar Dropping Coverage of Select Exploration and Production Companies
3/14/2017	Argus Research Corporation	Argus Analyst Report, APA
3/14/2017	Piper Sandler Companies	Model Update
3/14/2017	RBC Capital Markets	Apache Corporation - Management Meeting Highlights
3/17/2017	Jefferies	4Q16 Model Updates (APA, CLR, EOG, EPE, NFX)
3/17/2017	Sadif Analytics Prime	Rating Update for Apache Corp
3/20/2017	Wolfe Research	Oil & Gas – Large-Cap E&P Target Depth: EOG Eagle Ford EOR - aan AAPL Slider
3/20/2017	Wolfe Research	Oil & Gas - Sunday Sankey
3/20/2017	KLR Group	Permian and Alpine High Assets Drive Significant Growth in 2H/17
3/23/2017	Wolfe Research	Oil & Gas - Global Oil: Peaks & Canyons, Builds & Draws - The Midweek Market
3/27/2017	Wolfe Research	Oil & Gas – Large-Cap E&P Target Depth - EBITDAX/ Cash Flow Sensitivities Update Out to 2019
3/27/2017	Wolfe Research	Oil & Gas - Sunday Sankey
3/27/2017	Scotiabank GBM	Scotia Howard Weil Conference Thoughts; 4Q16 E&P Takeaway: Growth Re-ignites Oversupply Concerns
3/28/2017	Macquarie Research	Macquarie: Apache Corp (Underperform) - Investigating Incentives
3/31/2017	Seaport Global Securities LLC	Price Target and Estimates Update
4/3/2017	Wolfe Research	Oil & Gas – Large-Cap E&P Target Depth: Over the Hedge - E&P Crude Oil Hedging Update
4/3/2017	Wolfe Research	Oil & Gas - Sunday Sankey

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
4/3/2017	Scotiabank GBM	E&P Post Conference Takeaways
4/10/2017	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth: HESM is Going to Get the Check, Thanks
4/10/2017	Scarsdale Equities LLC (Historical)	Scarsdale Equities Bullish & Bearish Reversals 4.10.17
4/10/2017	Wolfe Research	Oil & Gas - Sunday Sankey
4/17/2017	Wolfe Research	Oil & Gas - Global Oil & Gas 1Q Earnings Season: Cash Me Ousside. How 'Bout Dah?
4/17/2017	Wolfe Research	Oil & Gas - Sunday Sankey
4/17/2017	Wells Fargo Securities, LLC	E&P: Adjusting Estimates And Valuation Ranges
4/18/2017	Jefferies	1Q17 Earnings Preview: Execution is Paramount
4/19/2017	Sadif Analytics Prime	Rating Update for Apache Corp
4/20/2017	Barclays	North America Oil & Gas: E&P (Large/Mid-Cap): UPDATE: Marking Q1 Oil/Gas to Market and Lowering 2018E Oil to \$60
4/24/2017	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth: Focus APC - Mr Misunderstood... One Day You'll Lead the Charge
4/24/2017	RBC Capital Markets	Apache Corporation - APA - Suriname Exploration Well Was Non-Commercial
4/24/2017	Wolfe Research	Oil & Gas - Sunday Sankey
4/24/2017	Scotiabank GBM	Calm Before the Production "Storm": 1Q17 Earnings Preview
4/26/2017	Seaport Global Securities LLC	SGS Energy Daily (04-26-17) - E&P Q1 Catalysts, APA, BBG, CWEI, EGN, MTDR, RRC, SN, WLL, SPN, RES, FTK, BHI
4/26/2017	Seaport Global Securities LLC	Estimates Update
4/28/2017	Fitch Ratings	Apache Corporation - Ratings Navigator
5/1/2017	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth: Bakken up the HES Truck - and Eager For Earnings: A Look-Ahead
5/1/2017	Wolfe Research	Oil & Gas - Sunday Sankey
5/2/2017	RBC Capital Markets	Apache Corporation - APA - 1Q17 Earnings Preview
5/3/2017	Wolfe Research	Oil & Gas - Global Oil: The Midweek Market - Tons of Stuff Up, Tons of Stuff Down, Averages... Flat Line
5/4/2017	BofA Global Research	Apache Corp: 1Q17 First look: EPS miss, Alpine High in focus but with limited new well data
5/4/2017	Deutsche Bank	Apache Corp. : Executing Along At Its Own Pace
5/4/2017	Barclays	APA Raises 2017 North America Production Guidance As Alpine High Comes Ahead of Schedule. 2018 Outlook Unchanged.
5/4/2017	Morgan Stanley	Apache Corp.: 1Q17: Oilier Alpine High Wells
5/4/2017	JPMorgan	Apache Corp : 1Q17 Earnings Flash - ALERT
5/4/2017	EVERCORE ISI	Taking the Long View
5/4/2017	Scotiabank GBM	Reports 1Q17 Financials with EPS Miss, EBITDA beat
5/4/2017	RBC Capital Markets	Apache Corporation - Getting Oilier in Alpine High
5/4/2017	Wells Fargo Securities, LLC	APA: Proving Alpine High Oil
5/4/2017	Cowen and Company	1Q17 Earnings at a Glance
5/4/2017	BMO Capital Markets	1Q in Line; Alpine High Ahead of Schedule, Well Results Improve
5/4/2017	JPMorgan	Apache Corp : 1Q17 Preview Model Update
5/4/2017	ValuEngine, Inc	ValuEngine Rating and Forecast Report for APA
5/4/2017	UBS Equities	Apache Corporation "1Q17 EPS Misses But EBITDX Beats; Alpine High Gets ..."
5/4/2017	UBS Equities	Apache Corporation "1Q EPS Misses but EBITDX Beats; Alpine High Gets Early ..."
5/5/2017	Wolfe Research	Oil & Gas - APA: 1Q17 - Want to Get Alpine High?

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
5/5/2017	Seaport Global Securities LLC	SGS Energy Daily (05-05-17) - APA, AREX, CHK, CLR, CXO, ECR, EGN, JONE, LPI, MRO, MTDR, PE, PQ, PXD, RICE, SRCI, WPX, WTI, ESES, FTK, GEOS, NE, PACD, TRGP, ATO
5/5/2017	Societe Generale	Apache Corp (Buy, TP=\$73) - Quarterly results - 4th quarter of positive free cash flow from operations, AH progressing, LOE declining. EPS miss a non-issue - J. Herrlin (1p)
5/5/2017	Scotiabank GBM	SHW Morning Energy Commentary - May 5 2017 - APA, AREX, AROC, CHK, CLMT, COP, D, ECR, EGN, ETP, EXTN, FMSA, LNG / CQP / CQH, MRO, NFG, OXY, PBF, PE, RDS.A, RICE / RMP, RIG, SRCI, UNT
5/5/2017	Credit Suisse	APA: Alpine High is Getting Closer
5/5/2017	CFRA Equity Research	Apache Corp
5/8/2017	Barclays	Apache Corp.: Alpine High Starts Producing, But We Remain Underweight
5/8/2017	Wells Fargo Securities, LLC	APA: Model Update
5/9/2017	Sadif Analytics Prime	Rating Update for Apache Corp
5/10/2017	Wright Reports	Wright Investors Service Comprehensive Report for Apache Corporation
5/15/2017	Societe Generale	Apache Corp (Buy, TP=\$73) - US WC NDR - Managed for long-term growth and returns; 2H17, Oil hedged and Alpine High ramps - J. Herrlin (18p)
5/15/2017	Wolfe Research	Oil & Gas - Sunday Sankey
5/15/2017	Sadif Analytics Prime	Will Apache Corp Deliver Long-Term Returns?
5/16/2017	KLR Group	Raising Target, Alpine High Infrastructure Ahead of Schedule
5/17/2017	Wolfe Research	Oil & Gas - Journey to the End of the Oil Age: Part 1 - The Future of US Gasoline
5/18/2017	Societe Generale	Apache Corp (Buy, TP=\$73) - EPS downgrade - EPS downgrade - J. Herrlin (1p)
5/22/2017	Wolfe Research	Oil & Gas - Sunday Sankey
5/22/2017	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth: NBL - Explaining Outspend... Noble Defense
5/23/2017	UBS Equities	UBS Global Oil and Gas Conference "Apache Corporation (APA)" Featherston
5/24/2017	Wolfe Research	Oil & Gas - OPEC/NOPEC: One more Time, with Feeling
5/30/2017	Wolfe Research	Oil & Gas - Sunday Sankey
5/30/2017	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth: PXD - Jo Mill and "New" Intervals in Midland
5/31/2017	JPMorgan	Apache Corp : 1Q17 Model Update
6/1/2017	BuySellSignals Research	Apache eighteenth worst performer of S&P 500 Index in 2017
6/5/2017	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth: Long-term Guidance Recap
6/5/2017	Wolfe Research	Oil & Gas - Sunday Sankey
6/6/2017	GlobalData	Apache Corporation (APA) - Financial and Strategic SWOT Analysis Review
6/7/2017	RBC Capital Markets	Apache Corporation - APA - Highlights from the RBC Global Energy and Power Executive Conference
6/7/2017	UBS Equities	Oil & Gas Exploration and Production "Lowering Near and Medium Term Oil ..."
6/8/2017	Wolfe Research	Oil & Gas - The Midweek Market: Kick Me When I Am Bleeding on the Floor
6/9/2017	EVERCORE ISI	When It Rains It Pours
6/12/2017	Wolfe Research	Oil & Gas: Large-Cap E&P Target Depth - OXY: Trajectory at \$50/bbl
6/12/2017	Wolfe Research	Oil & Gas - Sunday Sankey
6/13/2017	Cowen and Company	Model Update
6/13/2017	Argus Research Corporation	Argus Analyst Report, APA
6/16/2017	Validea	Validea Guru Analysis Report for APA. Analysis using Validea's interpretation of the published quantitative strategies of well-known Wall Street experts including Peter Lynch, Warren Buffett, Ben Graham and Ken Fisher, among others.

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
6/19/2017	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth: We Have Lift Off! Read-throughs From Wolfe SMID Cap E&P Launch
6/19/2017	Wolfe Research	Oil & Gas - Sunday Sankey
6/20/2017	Barclays	Apache Corp.: International Assets Will Likely Drag Growth Down - Reiterate UW Rating
6/21/2017	Seaport Global Securities LLC	Rating, Price Target and Estimates Update
6/21/2017	Wright Reports	Wright Investors Service Comprehensive Report for Apache Corporation
6/23/2017	GlobalData	Apache Corporation Oil & Gas Exploration and Production Operations and Cost Analysis i ₀ ½ Q4, 2016
6/27/2017	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth: MRO - Short-cycle at a Discount
6/28/2017	JPMorgan	Apache Corp : J.P. Morgan Conference Takeaways - ALERT
6/28/2017	Wolfe Research	Oil & Gas - The Visible Hand: Oil Earnings Share of the S&P500
6/29/2017	Scotiabank GBM	2Q17 Commodity Price Update
7/6/2017	Wolfe Research	Oil & Gas - The Visible Hand II: Oil Earnings Share of the S&P500
7/6/2017	Wells Fargo Securities, LLC	APA: Exiting Canada
7/6/2017	Barclays	North America Oil & Gas: E&P (Large/Mid-Cap): Disruptive Technology Pressuring Oil Prices - Cutting E&P Estimates
7/6/2017	UBS Equities	Apache Corporation "Exits Canada at Modest Price, But Improves Capital ..."
7/7/2017	BofA Global Research	Apache Corp: Cleaning up the portfolio at a fair price - from Canada gas to US gas
7/7/2017	Barclays	APA Proceeds for the Exit from Canada Are -\$0.55/Share Less Than Reflected in Our Recent \$33/share 'Sum of the Parts' Estimate
7/7/2017	Scotiabank GBM	SHW Morning Energy Commentary - Jul 07 2017 - APA, Weekly Refining Indicators Report
7/7/2017	Seaport Global Securities LLC	SGS Energy Daily (07-07-17) - APA, AREX, CHK, CXO, PDCE, Weekly EIA Scorecard, Crude-by-Rail
7/7/2017	Scotiabank GBM	Exit from Canada Cleans Up Portfolio
7/9/2017	EVERCORE ISI	A Quarter to Forget
7/10/2017	Credit Suisse	US Integrated Oils: Terminating Coverage
7/10/2017	Societe Generale	Apache Corp (Buy, TP=\$55) - Corporate news - Exit from Canada to increase op margins. Three sales for \$723MM or \$14,460/flowing barrel (66% natural gas) - J. Herrlin (1p)
7/10/2017	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth: Quarterly Catch-ups
7/11/2017	RBC Capital Markets	Apache Corporation - Exit Stage Left; Leaving Canada
7/17/2017	Wolfe Research	Global Oil & Gas - Third Sandwich : Cut Oil Price Forecast & Recommendations
7/17/2017	Wolfe Research	Oil & Gas - APA: Oh No, I Got Alpine High - DG to UP
7/17/2017	Wolfe Research	Oil & Gas - Sunday Sankey
7/18/2017	Scotiabank GBM	Large Cap E&P: A Look At 2018 EBITDA Risk
7/19/2017	Wells Fargo Securities, LLC	E&P: Model Updates
7/21/2017	Scotiabank GBM	2Q Earnings Preview Estimate Revisions
7/24/2017	Wolfe Research	Oil & Gas - OXY - More on Last Week's Upgrade
7/24/2017	Wolfe Research	Oil & Gas - Sunday Sankey
7/24/2017	Seaport Global Securities LLC	Estimates Update
7/31/2017	Wolfe Research	Oil & Gas - Sunday Sankey
8/1/2017	RBC Capital Markets	Apache Corporation - APA - 2Q17 Earnings Preview
8/2/2017	JPMorgan	Apache Corp : 2Q17 Preview Model Update
8/2/2017	Wright Reports	Wright Investors Service Comprehensive Report for Apache Corporation
8/3/2017	CFRA Equity Research	Apache Corp

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
8/3/2017	Societe Generale	Apache Corp (Buy, TP=\$55) - Quarterly results - An adjusted miss. No change to \$3.1 billion 2017 capex, but strong 2H17 output growth expected. - J. Herrlin (1p)
8/3/2017	BofA Global Research	Apache Corp: 2Q17 First look: operating miss; more oil in the Alpine high but gas skew in focus
8/3/2017	Morgan Stanley	Apache Corp.: 2Q17: Disclosure Light
8/3/2017	JPMorgan	Apache Corp : 2Q17 Flash - ALERT
8/3/2017	Barclays	APA Maintains 2017 Capital Budget and Production Guidance (Adjusted For Announced Canadian Divestitures)
8/3/2017	EVERCORE ISI	Sticking to its Guns
8/3/2017	Scotiabank GBM	2Q17 Results: EBITDA Beat but Guidance Unimpressive
8/3/2017	Cowen and Company	2Q17 Earnings at a Glance
8/3/2017	Wells Fargo Securities, LLC	APA: Quarter In-Line
8/3/2017	RBC Capital Markets	Apache Corporation - APA - 2Q17 Earnings Miss; Focus Will be More Alpine High Oil Wells
8/3/2017	BMO Capital Markets	2Q Production at High-End, But Permian Oil Light; Alpine High Ramp Continues
8/3/2017	ValuEngine, Inc	ValuEngine Rating and Forecast Report for APA
8/4/2017	Scotiabank GBM	SHW Morning Energy Commentary - Aug 04 2017 - APA, CXO, DUK, FMSA, NBL, NFG, RIG, SM, SRCI, SWN, TS
8/4/2017	Deutsche Bank	Apache Corp. : High On The Alpine
8/7/2017	Barclays	Apache Corp.: APA's Q2 Volumes Fell as the Co. Suffers a Hangover from 2016's Reduced Cap-ex
8/7/2017	EVERCORE ISI	Introducing Risk to a Perceived Safe Haven
8/8/2017	BMO Capital Markets	2Q17 Model Book - Part II
8/8/2017	KLR Group	Alpine High Volumes Ramping, Resuming Growth During 2H/17
8/8/2017	Wells Fargo Securities, LLC	APA: Model Update
8/11/2017	RBC Capital Markets	Apache Corporation - Sticking to The Plan; Model Update Post Earnings
8/11/2017	Seaport Global Securities LLC	Estimates Update
8/11/2017	Seaport Global Securities LLC	SGS Energy Daily (08-11-17) - APA, AXAS, ECR, EGN, ESTE, HK, MTDR, NBL, PDCE, PE, SBOW, SN, SWN, ESES, IEA OMR Highlights
8/11/2017	Scotiabank GBM	Large Cap E&P - Updating Price Targets and Estimates
8/14/2017	Wolfe Research	Oil & Gas - Sunday Sankey
8/14/2017	RBC Capital Markets	Research at a Glance - [U.S.] Aug 14,2017
8/14/2017	Sadif Analytics Prime	Will Apache Corp Deliver Long-Term Returns?
8/15/2017	JPMorgan	Apache Corp : 2Q17 Model Update
8/15/2017	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth: DVN - Restructuring Potential?
8/18/2017	Cowen and Company	Model Update
8/18/2017	Wells Fargo Securities, LLC	Suspending Equity Research Coverage
8/21/2017	BuySellSignals Research	Institutional favorite Apache underperforms 93% of the market
8/21/2017	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth: Can you hear me? Enercom Read Through...
8/21/2017	Scotiabank GBM	2Q17 Recap - A Wild Earnings Season Could Bring Opportunity
8/29/2017	Wolfe Research	Oil & Gas - Large Cap E&P: Target Depth - Early Eagle Ford Storm Comments & MUR Tupper Follow-Up
8/29/2017	Jefferies	PrimeTime Europe
9/5/2017	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth: #Getwoke Questions for Unloved Managements...
9/6/2017	Wolfe Research	Oil & Gas - Global Oil & Gas: A Third Steel, a Third Guns, a Third Germs - 2Q Credit Metrics
9/7/2017	MUFG Securities Americas Inc.	Model Update

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
9/11/2017	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth - NBL Wolfcamp and Other Post-Labor Day Takeaways
9/13/2017	Argus Research Corporation	Argus Analyst Report, APA
9/14/2017	JPMorgan	Integrated/E&P Deep Dive : Beyond the NAV: Examining Valuation via the FCF Lens; Downgrade APA/HES/IMO
9/18/2017	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth: Imagining a No-Growth E&P... Continued
9/22/2017	Validea	Validea Guru Analysis Report for APA. Analysis using Validea's interpretation of the published quantitative strategies of well-known Wall Street experts including Peter Lynch, Warren Buffett, Ben Graham and Ken Fisher, among others.
9/22/2017	GlobalData	Apache Corporation (APA) - Financial and Strategic SWOT Analysis Review
9/25/2017	Wright Reports	Wright Investors Service Comprehensive Report for Apache Corporation
9/26/2017	Wolfe Research	Oil & Gas – Large Cap EP Target Depth: MRO - Running Man: Consensus Needs to Catch Up
9/28/2017	Scotiabank GBM	Crude Stabilizing Above \$50 - Will Investors Care?
10/9/2017	RBC Capital Markets	Apache Corporation - APA - Alpine High Update; Potential Deep-Dive on Well Data
10/10/2017	Jefferies	Apache: APA: UNDERPERFORM: Updating for Hurricane Harvey Impacts and Alpine High Review
10/10/2017	Barclays	APA - Lower Production Guidance Likely to Outweigh the Progress Made in Alpine High
10/10/2017	Wolfe Research	Oil & Gas - APA: Alpine High, Production Lower, Analyst's Sigh
10/10/2017	BofA Global Research	Apache Corp: 3Q17 guidance: production hurt by storms ... mixed update on the Alpine High
10/10/2017	Scotiabank GBM	SHW Morning Energy Commentary - 10 Oct 2017 - APA, CVEO, HP
10/10/2017	Seaport Global Securities LLC	Estimates Update
10/10/2017	Seaport Global Securities LLC	SGS Energy Daily (10-10-17) - APA, PE, Coal weekly, Energy Infrastructure/MLP initiation: AM, AMGP, ENLC, ENLK, EPD, EQGP, EQM, NBLX, PAA, PAGP, WES, and WGP
10/10/2017	Deutsche Bank	Apache Corp. : Higher Love? I Will Wait For It
10/10/2017	Scotiabank GBM	Alpine High Update; Charting the Road Ahead
10/10/2017	RBC Capital Markets	Apache Corporation - Alpine High Developing Meticulously
10/10/2017	Morgan Stanley	Apache Corp.: Lowering 2H17: Outlook Still Alpine High
10/10/2017	JPMorgan	Apache Corp : Lowering Estimates on Corporate Update; Key Highlights from Alpine High Update
10/10/2017	EVERCORE ISI	Truing Up Expectations
10/11/2017	Barclays	North America Oil & Gas: E&P (Large/Mid-Cap): Cutting '18/19E Oil 5-7% to \$49-50; Upgrading RRC to OW from UW
10/16/2017	Wolfe Research	Oil & Gas - Sunday Sankey
10/16/2017	BMO Capital Markets	APA: Revisiting Alpine High; Some Promise but Greater Consistency Needed
10/17/2017	BMO Capital Markets	APA: Model Update - APA
10/18/2017	Societe Generale	Apache Corp (Buy, TP=\$55) - Corporate news - 3Q17 & Alpine High (AH) updates didn't serve as positive catalysts; still, we like the AH value potential - J. Herrlin (8p)
10/18/2017	Sadif Analytics Prime	Rating Update for Apache Corp
10/19/2017	EVERCORE ISI	Sturm und Drang
10/19/2017	CFRA Equity Research	Apache Corporation
10/20/2017	BofA Global Research	Apache Corp: 3Q17 Earnings update: EPS (\$0.16) from (\$0.07) on additional pre announcements
10/20/2017	Macquarie Research	Macquarie: Apache Corp (Underperform) - Valuation Build-up Remains Challenging
10/22/2017	RBC Capital Markets	Apache Corporation - 3Q17 Earnings Preview and Model Update
10/22/2017	EVERCORE ISI	Oil Up, Stocks Not
10/24/2017	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth: Renaissance Ideas 3Q17 Earnings - EOG, MRO, NBL, APA
10/24/2017	Seaport Global Securities LLC	Estimates Update

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
10/24/2017	Scotiabank GBM	3Q17 Earnings Preview Estimate Revisions
10/27/2017	Cowen and Company	Model Update - APA
11/1/2017	ValuEngine, Inc	ValuEngine Rating and Forecast Report for APA
11/2/2017	Deutsche Bank	Apache Corp. : Same Story, Different Day
11/2/2017	Societe Generale	Apache Corp (Buy, TP=\$55) - Quarterly results - 3Q17 adjusted EPS beat. QOQ adjusted BOE growth +5%; with 11% in the Permian. - J. Herrlin (1p)
11/2/2017	Morgan Stanley	Apache Corp.: 3Q17: Waiting on Alpine High
11/2/2017	BofA Global Research	Apache Corp: 3Q17 First look: EPS beats on tax - focus on 2018-2019 activity levels
11/2/2017	JPMorgan	Apache Corp : 3Q17 Flash - ALERT
11/2/2017	Barclays	APA Misses Q3 Liquids Volume Estimates, Reiterates 4Q Targets and 2017 Capital Budget
11/2/2017	EVERCORE ISI	A Very In-Line Quarter
11/2/2017	CFRA Equity Research	Apache Corporation
11/2/2017	Cowen and Company	3Q17 Earnings at a Glance
11/2/2017	RBC Capital Markets	Apache Corporation - APA - 3Q17 CFPS In Line; A Few New Permian Wells Looked Good
11/2/2017	Jefferies	Apache: APA: UNDERPERFORM: 3Q In Line, Waiting For 2018 Outlook
11/2/2017	BMO Capital Markets	APA: Few Surprises in 3Q Following October Update
11/2/2017	Scotiabank GBM	SHW Morning Energy Commentary - Nov 02 2017 - AR / AM / AMGP, APA, AREX, AROC, CHK, EPD, EPE, FI, FMSA, FRAC, GPOR, LPI, MDR, MRO, MUR, NBLX, OXY, PBF, PES, PXD, RDC, RDS.A, RIG, SRCL, TS, UNT, WFT, WMB, WPX, Weekly Refining Indicators Report
11/2/2017	Scotiabank GBM	Solid Quarter, Fireworks Already Announced
11/3/2017	Jefferies	Apache: APA: UNDERPERFORM: Growth Momentum Returns But Major Infrastructure Build Ahead
11/3/2017	Wolfe Research	Oil & Gas - APA: Hi, Everyone - Could I Just Follow Up on Hedging and
11/3/2017	Seaport Global Securities LLC	SGS Energy Daily (11-03-17) - APA, AR, AREX, CHK, CRK, ESTE, GPOR, LPI, MRO, PQ, PXD, SD, SM, SN, SRCL, WPX, NE, SOI, XDC-T
11/5/2017	RBC Capital Markets	Apache Corporation - Full Steam Ahead
11/6/2017	CFRA Equity Research	Apache Corporation
11/6/2017	Barclays	Apache Corp.: Apache Returns to Growth
11/7/2017	JPMorgan	Apache Corp : 3Q17 Model Update
11/7/2017	Wright Reports	Wright Investors Service Comprehensive Report for Apache Corporation
11/8/2017	CFRA Equity Research	Apache Corporation
11/9/2017	EVERCORE ISI	Post-3Q17 Producer Hedging Update - RESEND
11/13/2017	Scotiabank GBM	Large Cap Estimate Revisions
11/16/2017	Wolfe Research	Oil & Gas - Integrated/Large Cap E&P: Pay in the E&P Renaissance - Tangibles & Symbols
11/20/2017	Wolfe Research	Oil & Gas - Sunday Sankey
11/20/2017	Barclays	North America Oil & Gas: E&P (Large/Mid-Cap): Upgrading Mid-Cap E&P to Positive and Large-Cap E&P to Neutral
11/21/2017	Scotiabank GBM	3Q17 Earnings Takeaway Estimate Revisions
11/22/2017	Wolfe Research	Oil & Gas - Large-Cap E&P Target Depth: APC & HES - Updates Ahead of the Holiday
12/1/2017	BuySellSignals Research	Institutional favorite Apache underperforms 93% of the market
12/1/2017	CFRA Equity Research	Apache Corporation
12/4/2017	NatAlliance	Launching Coverage of Apache Corp (APA) With A Hold Rating

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
12/5/2017	CFRA Equity Research	Apache Corporation
12/6/2017	Wolfe Research	Oil & Gas - PXD: A Renaissance Carriage Awaits
12/11/2017	RBC Capital Markets	US E&P - North Sea Pipeline Outage Impacts Production
12/14/2017	Scotiabank GBM	Focus 2018: Updating Select Targets and Estimates
12/19/2017	Seaport Global Securities LLC	Price Target and Estimates Update
12/19/2017	GlobalData	Apache Corporation (APA) - Financial and Strategic SWOT Analysis Review
12/20/2017	Argus Research Corporation	Argus Analyst Report, APA
12/21/2017	RBC Capital Markets	Apache Corporation - APA - Transport Agreement Improves Natural Gas Sales Optionality
12/21/2017	Scotiabank GBM	SHW Morning Energy Commentary - Dec 21 2017 - Crude Oil & Downstream Strategy, E&P, Independent Refiners, Major Integrated Oils, Natural Gas, COG, DRQ, NBR, Weekly Refining Indicators Report
12/21/2017	Barclays	North America Oil & Gas: E&P (Large/Mid-Cap): Raising Oil Assumptions - But We Are Nervous About Strong US Oil Growth
12/23/2017	Wright Reports	Wright Investors Service Comprehensive Report for Apache Corporation
12/29/2017	BuySellSignals Research	Apache tumbles 34% in FY 2017, in bottom 9% of the market
12/29/2017	Validea	Validea Guru Analysis Report for APA. Analysis using Validea's interpretation of the published quantitative strategies of well-known Wall Street experts including Peter Lynch, Warren Buffett, Ben Graham and Ken Fisher, among others.
1/4/2018	Vermilion Technical Research	Booster Shots - Names highlighted: AAP, JWN, M, BJRI, DIN, HIBB, MNRL, SONC, SPWH, SSTK, ZOES, APA, AR, HES, NBL, NFX, NOV, RIG, SLB, WLL, CRZO, FET, OIS, PDCE, PES, SLCA, SND, SPG, RPT, MYL, CBMG, INSY, ASTE, WAB, ROCK, and IDCC.
1/8/2018	JPMorgan	JPM E&P Shale Well Watcher : New Year, But Same EOG and MRO; APA Finding its Groove in Midland; S. Del. Activity Continues to Shine
1/9/2018	Societe Generale	Apache Corp (Buy, TP=\$53) - 12m target downgrade - Reducing 4Q17 EPS/DCFPS estimates 48%/18% to \$0.14/\$1.27 given today's ops update - J. Herrlin (1p)
1/9/2018	BofA Global Research	Apache Corp: 4Q17 guidance quantifies impact of Forties downtime; but other factors weigh
1/9/2018	Credit Suisse	APA: Cuts 4Q17 International Volume Guidance but Permian Remains Strong; Lowering Estimates
1/9/2018	Barclays	APA: 4Q Guide Down May Slightly Disappoint Investors
1/9/2018	MUFG Securities Americas Inc.	International Production Guidance Lowered
1/9/2018	Scotiabank GBM	SHW Morning Energy Commentary - Jan 09 2018 - APA, Gas Weekly Update
1/9/2018	Scotiabank GBM	4Q17 Guidance Update - Minimal Impact to Estimates
1/9/2018	RBC Capital Markets	Apache Corporation - APA - Production Update for North Sea Downtime and Strong North America Performance
1/10/2018	Seaport Global Securities LLC	Estimates Update
1/10/2018	Seaport Global Securities LLC	SGS Energy Daily (01-10-18) - APA, BBG, CRZO, REI, SM, PARR, EIA STEO Natgas Highlights
1/12/2018	Wolfe Research	Oil & Gas - Oil Prices Ripping: So You Push Me to the Hedge
1/24/2018	Societe Generale	Apache Corp (Buy, TP=\$53) - EPS upgrade - Given higher 2018 oil prices, we are increasing our EPS/DCFPS estimates - J. Herrlin (1p)
1/25/2018	Scotiabank GBM	Large Caps - Natural Gas Price Changes Have Minimal Impact
1/29/2018	Barclays	Energy: Discontinuing Coverage
1/30/2018	Wolfe Research	Oil & Gas - Large-Cap E&P: "The One Who Adapts His Policy to the Times Prospers" - Upgrade to Overweight
1/30/2018	Cowen and Company	Model Update

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
1/30/2018	Vermilion Technical Research	Booster Shots - Charts highlighted: MATX, AAP, FL, DIN, GCO, HIBB, CAG, KR, APA, KR, HES, NBL, NFX, CBI, DRQ, PDCE, BPOP, DNB, NYCB, Y, FBP, RLI, UHS, ALDR, ARAY, THC, and NCI.
1/31/2018	Scotiabank GBM	4Q17 Earnings Preview - Estimate Revisions
2/4/2018	Wright Reports	Wright Investors Service Comprehensive Report for Apache Corporation
2/5/2018	Wolfe Research	Oil & Gas - Large Cap E&P: Target Depth - Super Bowl Weak But 2018 Strong
2/5/2018	JPMorgan	JPM E&P Shale Well Watcher : Super Bowl Edition: PXD/APA Midland Momentum Continues; SM's Sweetie Peck Remains on Point
2/5/2018	Seaport Global Securities LLC	SGS Energy Daily (02-05-18) - APA, AREX, AXAS, COG, CXO, GPOR, HK, JAG, LONE, LPI, MCF, MTDR, NBL, PDCE, XEC, WFT, Well Watcher, SCOOP/STACK Natgas Takeaway, E&P and OFS Comps, MLP weekly, Coal Weekly
2/5/2018	Seaport Global Securities LLC	Estimates Update
2/12/2018	Seaport Global Securities LLC	SGS Energy Daily (02-12-18) - APA, AXAS, CDEV, FANG, GST, LLEX, LONE, MTDR, PDCE, PE, PQ, REI, ROSE, RSPP, WPX, HP, NOV, PTEN, E&P Comps, OFS Comps, MLP weekly
2/19/2018	ValuEngine, Inc	ValuEngine Rating and Forecast Report for APA
2/20/2018	RBC Capital Markets	Apache Corporation - APA - 4Q17 Earnings Preview
2/22/2018	Credit Suisse	APA: 2018 and Longer-Term Guidance Disappoint on Underwhelming Permian Outlook
2/22/2018	Societe Generale	Apache Corp (Buy, TP=\$53) - Full-year results - 4Q17 Adjusted EPS beat even with Forties outage. \$3 billion 2018 cap-ex flat, but targets 10% adj. BOE growth - J. Herrlin (1p)
2/22/2018	Deutsche Bank	Apache Corp. : APA 4Q17 - A Dream Deferred
2/22/2018	BofA Global Research	Apache Corp: 4Q17 First look: EPS beat on tax; shift toward US gas remains primary headwind
2/22/2018	JPMorgan	Apache Corp : 4Q17 Flash: Despite 4Q Beat, Stock Will Need to Digest Lower 2018/2019 Output - ALERT
2/22/2018	EVERCORE ISI	Quietly Following Through on Alpine, Market Looking for Clarity
2/22/2018	Scotiabank GBM	Outlook and Operations Update Fail to Excite
2/22/2018	Cowen and Company	4Q17 Earnings at a Glance
2/22/2018	Jefferies	4Q Beat; Three-Year Outlook Unveiled
2/22/2018	RBC Capital Markets	Apache Corporation - 4Q17 Earnings Beat but 3-Yr Outlook a Bit Soft
2/22/2018	BMO Capital Markets	APA: 4Q Better on Oil; 2018-20 Outlook Mostly In Line With Expectations
2/22/2018	Vermilion Technical Research	Short Shots - Charts highlighted: AEM, AIMC, AYI, CEVA, COHR, DBD, IDCC, HOG, TTM, GT, MHK, TPX, XEC, APA, DVN, NFX, CVX, FMC, SHPG, LLY, UTHR, REGN, WST, KHC, HSY, PEP, MO, BTI, CL, LABL, WAGE, KMX, PNW, TOWN, PFG, ACGL, MFC, EQIX, MAA, COR, and BCE.
2/23/2018	Societe Generale	Apache Corp (Buy, TP=\$53) - Roadshow - Returns focused, shareholder aligned, geographically diversified, fiscally conservative, and yet a peer laggard - J. Herrlin (6p)
2/23/2018	Wolfe Research	Oil & Gas - APA: Was Gonna Grow Oil But Then I Got (Alpine) High
2/23/2018	Scotiabank GBM	SHW Morning Energy Commentary - Feb 23 2018 - APA, AROC, COG, CVEO, FTI, GPOR, NE, OIL, TS, Weekly Refining Indicators Report
2/23/2018	NatAlliance	Apache Corp (APA) Solid 4Q17 Cash Flow
2/23/2018	Seaport Global Securities LLC	SGS Energy Daily (02-23-18) - APA, CEIX, CHK, CLR, COG, CRK, ESTE, GPOR, HCC, LONE, MTDR, NOG, OIL, PE, PQ, SD, SM, SRCI, WLL, WPX, Weekly EIA Scorecard, Natgas Storage
2/23/2018	BofA Global Research	Apache Corp: 4Q17 recap: medium term outlook helps visibility; but many questions unanswered
2/23/2018	Credit Suisse	APA: 2018 and Longer-Term Guidance Disappoint on Underwhelming Permian Outlook

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
2/26/2018	MUFG Securities Americas Inc.	Raising to Overweight; Recent Price Decline Makes the Shares Attractive
2/26/2018	Scotiabank GBM	Updating Estimates for Select Large Cap E&P Names
2/26/2018	CFRA Equity Research	Apache Corporation
2/27/2018	Scotiabank GBM	SHW Morning Energy Commentary - Feb 27 2018 - E&P, BSM, CDEV, CRZO, DK, DKL, DRQ, ESV, EXTN, FI, FRAC, JAG, KOS, PDCE, Gas Weekly Update
2/27/2018	KLR Group	Alpine Execution Should Drive Stock Appreciation
2/28/2018	CFRA Equity Research	Apache Corporation
3/1/2018	BuySellSignals Research	Institutional favorite Apache underperforms 96% of the market
3/1/2018	CFRA Equity Research	Apache Corporation
3/4/2018	RBC Capital Markets	Apache Corporation - Heightened Focus on Alpine High
3/6/2018	UBS Equities	Initiation of Coverage: Apache Corporation "Goin' to Have to Prove It"
3/8/2018	Wolfe Research	Oil & Gas Exploration & Production - Houston Tour Takeaways
3/9/2018	Wright Reports	Wright Investors Service Comprehensive Report for Apache Corporation
3/12/2018	JPMorgan	Apache Corp : Model Update
3/14/2018	Scotiabank GBM	Large Cap Monthly - Estimate Changes
3/15/2018	Plunkett Research, Ltd.	Apache Corporation: Analytics, Extensive Financial Metrics, and Benchmarks Against Averages and Top Companies Within Its Industry
3/16/2018	Cowen and Company	Model Update
3/19/2018	GlobalData	Apache Corporation (APA) - Financial and Strategic SWOT Analysis Review
3/21/2018	Scotiabank GBM	Pre-Conference Thoughts
3/23/2018	RBC Capital Markets	Apache Corporation - APA - Discovery Adds Life to the North Sea
3/29/2018	Societe Generale	Apache Corp (Buy, TP=\$53) - EPS downgrade - Revised EPS/DCFPS projections - J. Herrlin (1p)
4/2/2018	Scotiabank GBM	Post-Conference Takeaways: Measured Growth and M&A!
4/3/2018	Seaport Global Securities LLC	Estimates Update
4/4/2018	Scotiabank GBM	Permian M&A Thoughts; Development Strategy Is Key to Executing Corporate Transactions
4/6/2018	Validea	Validea Guru Analysis Report for APA. Analysis using Validea's interpretation of the published quantitative strategies of well-known Wall Street experts including Peter Lynch, Warren Buffett, Ben Graham and Ken Fisher, among others.
4/9/2018	Argus Research Corporation	Argus Analyst Report, APA from Market Update of 04/02/2018
4/9/2018	EVERCORE ISI	First Look - Apr 09 2018
4/9/2018	Macquarie Research	Macquarie: Apache Corp (Underperform) - Investigating Incentives
4/9/2018	EVERCORE ISI	Fundamentals Will Matter (question is...when?)
4/16/2018	Scotiabank GBM	Updating Estimates
4/24/2018	Marktfeld	Apache Corp: Ownership Timelines & Cost Basis Curve (April 2018) - NEW VERSION
4/25/2018	Seaport Global Securities LLC	Estimates Update
4/26/2018	Scotiabank GBM	1Q18 Earnings Preview - Estimate Revisions
4/27/2018	RBC Capital Markets	Apache Corporation - APA - 1Q18 Earnings Preview
4/27/2018	JPMorgan	Apache Corp : Model Update
4/27/2018	Societe Generale	Apache Corp (Buy, TP=\$53) - EPS downgrade. - Reducing EPS/DCFPS after model review shows underestimated income tax rate - J. Herrlin (1p)
4/27/2018	Wright Reports	Wright Investors Service Comprehensive Report for Apache Corporation

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
5/1/2018	RBC Capital Markets	DVN - Setting The Record Straight
5/2/2018	BMO Capital Markets	APA: 1Q Vols Better, but Capex Above; 2018 U.S. Oil/BOE Raised
5/2/2018	Cowen and Company	1Q18 Earnings at a Glance
5/2/2018	RBC Capital Markets	Apache Corporation - APA - 1Q18 Strong Results Driven by Robust Permian Performance; Production Guide Increased
5/2/2018	Jefferies	1Q18 Beat, US Production Guidance Raised
5/2/2018	ValuEngine, Inc	ValuEngine Rating and Forecast Report for APA
5/2/2018	UBS Equities	First Read: Apache Corporation "Modest Beat, US Onshore Outperforms" (Sell)
5/2/2018	Macquarie Research	Macquarie: Apache Corp (APA US) (Underperform) - Strong 1Q18 but Limited Follow Through Begg the Question: Conservative or One-Time?
5/3/2018	EVERCORE ISI	1Q18 Results Review
5/3/2018	Wolfe Research	Oil & Gas - APA: No Jokes This Quarter - But Midstream Questions Linger
5/3/2018	Wolfe Research	Oil & Gas - APA: No Jokes This Quarter - But Midstream Questions Linger
5/3/2018	NatAlliance	Apache Corp (APA) Raises 2018 Production Guidance By 1%
5/3/2018	BofA Global Research	Apache Corp: 1Q18 Earnings recap: solid quarter, higher guidance, but outlook still gas dominant
5/3/2018	Scotiabank GBM	SHW Morning Energy Commentary - May 03 2018 - APA, AROC, CLR, CNX, CPE, ECR, EXTN, FMSA, FRAC, HK, LPI, MRO, MTDR, MUR, NBR, NE, PBF, PES, PDCE, PXD, RSPP, SRCI, WMB, WPX, Weekly Refining Indicators Report
5/3/2018	Seaport Global Securities LLC	SGS Energy Daily (05-03-18) - APA, APC, AREX, ATO, CHK, CLR, CPE, CXO, DVN, ECR, HCC, HK, JONE, LPI, MRO, MTDR, NFX, PDCE, PXD, RSPP, SRCI, WPX
5/3/2018	Societe Generale	Apache Corp (Buy, TP=\$53) - Quarterly results - 1Q ops reflective of measured pace; emphasis on Permian shales and int'l unconventionalals - J. Herrlin (1p)
5/3/2018	Scotiabank GBM	1Q18 Results: Domestic Production Accelerates on Permian Improvements
5/3/2018	Deutsche Bank	Apache Corp. : APA 1Q18 - Back in Black (Oil)
5/3/2018	Credit Suisse	APA: 1Q EPS & Production Beat But CFPS Misses; Raises 2018 Volume Outlook Driven by U.S.
5/3/2018	JPMorgan	Apache Corp : 1Q18 Flash: Upside Financials and Guidance Bump Will Likely Trump Alpine High Volume Miss; Stock Reaction-Positive - ALERT
5/4/2018	CFRA Equity Research	Apache Corporation
5/4/2018	Seaport Global Securities LLC	SGS Energy Daily (05-04-18) - APA, AREX, ATO, BAS, CLR, CPE, ECR, ESTE, HK, LPI, MRO, MTDR, NE, PDCE, PE, PXD, RSPP, SM, SRCI, WPX, XDC-T
5/7/2018	BMO Capital Markets	E&P Week 2 Model Book
5/7/2018	Seaport Global Securities LLC	SGS Energy Daily (05-07-18) - APA, APC, BAS, CHK, CLR, CPE, DVN, ECR, EQT, ESTE, HOS, HP, MRO, MTDR, NBL, NFX, NOV, PE, PTEN, PXD, RRC, SM, WLL, WPX, E&P and OFS Comps, Energy Infrastructure Weekly
5/8/2018	RBC Capital Markets	Apache Corporation - Update Following 1Q18
5/8/2018	KLR Group	Target Price Unchanged, Alpine Key to Success
5/14/2018	RBC Capital Markets	Apache Corporation - APA - Header System Investment Pairs with Infrastructure Plans
5/15/2018	Wolfe Research	Oil & Gas Exploration & Production - Transfer Of Coverage
5/18/2018	UBS Equities	NorAm E&P "Marking to Market '18 / '19, Updating CFPS & PTs" Byrne
5/21/2018	Scotiabank GBM	1Q18 Earnings Takeaway Estimate Revisions
5/21/2018	MUFG Securities Americas Inc.	Increasing Price Target on Permian Success
5/21/2018	Sadif Analytics Prime	Will Apache Corp Deliver Long-Term Returns?

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
5/23/2018	Seaport Global Securities LLC	Estimates Update
5/24/2018	RBC Capital Markets	Apache Corporation - APA - Securing NGL Pipeline Access to Premium Market
5/29/2018	Societe Generale	Apache Corp (Buy, TP=\$53) - EPS upgrade - Revised EPS/DCFPS projections - J. Herrlin (1p)
5/29/2018	CFRA Equity Research	Apache Corporation
5/31/2018	BuySellSignals Research	Apache falls for a fourth consecutive year, a four-year fall of 56%
6/5/2018	Sadif Analytics Prime	Rating Update for Apache Corp
6/6/2018	RBC Capital Markets	Apache Corporation - APA - Highlights from the RBC Global Energy and Power Executive Conference
6/6/2018	Boston Energy Research	Undervalued APA is a Buy with an upside target price of \$67/share (+71%)
6/11/2018	Argus Research Corporation	Argus Analyst Report, APA
6/13/2018	JPMorgan	Apache Corp : 1Q18 Model Update
6/16/2018	Wright Reports	Wright Investors Service Comprehensive Report for Apache Corporation
6/18/2018	GlobalData	Apache Corporation (APA) - Financial and Strategic SWOT Analysis Review
6/19/2018	JPMorgan	Apache Corp : J.P. Morgan Conference Takeaways - ALERT
6/22/2018	Vermilion Technical Research	Booster Shorts - Charts highlighted: EXPE, MAT, SIG, DLTH, FRAN, LOCO, CAG, FIZZ, SPTN, SVU, APA, AR, RRC, AROC, EGC, SPG, PSA, AKR, ROIC, ALDR, CHRS, LXR, MATW, NUVA, RARX, ATU, DDD, NTCT, SYNA, and CBS.
6/25/2018	Marktfeld	Apache Corp: Information Content of Earnings Releases 2013-2018
6/25/2018	RBC Capital Markets	Apache Corporation - APA - Transport Agreement Adds Additional Natural Gas Sales Option
6/26/2018	Societe Generale	Apache Corp (Buy, TP=\$53) - Corporate news - G.C. Express + Permian Highway (1 Bcf/d w/ equity options), 3 cryo plants & Shin Oak Ngl Line will facilitate midstream sale - J. Herrlin (1p)
6/26/2018	Marktfeld	Apache Corp: Capital Deployment Dashboard (Q1 FY2018)
6/26/2018	Scotiabank GBM	SHW Morning Energy Commentary - Jun 26 2018 - Midstream, SM
6/26/2018	Scotiabank GBM	Announcing Development of Second Permian Gas Takeaway Pipeline
6/28/2018	Corporate Watchdog Reports	Watchdog Report: APA
7/13/2018	Validea	Validea Guru Analysis Report for APA. Analysis using Validea's interpretation of the published quantitative strategies of well-known Wall Street experts including Peter Lynch, Warren Buffett, Ben Graham and Ken Fisher, among others.
7/17/2018	Seaport Global Securities LLC	Estimates Update
7/17/2018	Seaport Global Securities LLC	SGS Energy Daily (07-17-18) - APA, GPOR, OFS Consolidation, Coal Weekly
7/23/2018	JPMorgan	Apache Corp : 2Q18 Earnings Preview: Anticipating Upbeat Results
7/25/2018	Scotiabank GBM	2Q18 Earnings Preview - Estimate Revisions
7/30/2018	RBC Capital Markets	Apache Corporation - APA - 2Q18 Earnings Preview
7/31/2018	Acquisdata	Apache Corporation (NYSE- APA)
7/31/2018	Wolfe Research	Oil & Gas Exploration & Production - Daily Dose Of Earnings To Come
8/1/2018	BMO Capital Markets	APA: 2Q Vols Better With Outlook Raised, But Capex Also Moves Higher
8/1/2018	Cowen and Company	2Q18 Earnings at a Glance
8/1/2018	Jefferies	2Q18 Beat; Strong 2Q, But US Capex Raised by \$400 MM
8/1/2018	RBC Capital Markets	Apache Corporation - APA - 2Q18 Earnings Beat; Spending and Production Increased
8/1/2018	ValuEngine, Inc	ValuEngine Rating and Forecast Report for APA
8/1/2018	Macquarie Research	Macquarie: Apache Corp (APA US) (Underperform) - Rising Capex Ahead of Alpine High Ramp
8/2/2018	Wolfe Research	Oil & Gas Exploration & Production - APA: Still Looking For That Alpine Midstream Magic

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
8/2/2018	RBC Capital Markets	Apache Corporation - Stay Tuned
8/2/2018	NatAlliance	Apache Corp (APA) 2018 Production Guidance Up 1% On 13% CapEx Bump
8/2/2018	CFRA Equity Research	Apache Corporation
8/2/2018	Scotiabank GBM	SHW Morning Energy Commentary - Aug 2 2018 - AR / AM / AMGP, APA, CNX, CXO, FE, GPOR, LPI, MRO, MTDR, SM, SRCI, TGE, MB, WPX, Weekly Refining Indicators Report
8/2/2018	Seaport Global Securities LLC	Seaport Global Energy Daily (08-02-18) - APA, APC, CEIX, CXO, DVN, GPOR, HCC, HOS, HK, MRO, MTDR, NBR, NFX, PES, RGCO, SM, SRCI, WLL, WPX, WTI
8/2/2018	Societe Generale	Apache Corp (Buy, TP=\$53) - Quarterly results - 2Q18 EPS beat. 2018 cap-ex increasing 13% to \$3.4bn to capture efficiencies. It should be within cash flow. '18e growth 13% - J. Herrlin (1p)
8/2/2018	BofA Global Research	Apache Corp: 2Q18 Earnings recap: EPS beats, lower costs and derivative gains; capex up 13%
8/2/2018	Scotiabank GBM	Higher CapEx Dilutes An Otherwise Positive Release
8/2/2018	Credit Suisse	APA: Raises Capex & Production But FCF Profile Weakens
8/2/2018	Morgan Stanley	Apache Corp.: Higher Spend Overshadows Solid Quarter; Remain UW
8/2/2018	JPMorgan	Apache Corp : 2Q18 Flash: Strong 2Q18 Results Overshadowed by Magnitude of Capex Increase; Stock Reaction-Negative - ALERT
8/2/2018	UBS Equities	First Read: Apache Corporation "Beat In Quarter, Capex Offset" (Sell) Byrne
8/2/2018	EVERCORE ISI	2Q Results Review
8/3/2018	CFRA Equity Research	Apache Corporation
8/3/2018	Seaport Global Securities LLC	Seaport Global Energy Daily (08-03-18) - APA, BAS, CJ, CXO, ECR, GPOR, HK, LLEX, MRO, MTDR, NE, SM, SRCI, WPX, WTI
8/6/2018	CFRA Equity Research	Apache Corporation
8/7/2018	Acquisdata	Apache Corporation (NYSE- APA)
8/7/2018	MUFG Securities Americas Inc.	Raising Price Target to \$66 on Higher Permian Production
8/8/2018	BMO Capital Markets	APA: Alpine Midstream Value at High End, But No Upfront Cash
8/8/2018	RBC Capital Markets	Apache Corporation - APA - Creating New Public Corporation with Midstream Assets
8/8/2018	Vermilion Technical Research	Booster Shots Charts highlighted: VER, DKS, PAG, EXPR, KMB, ANDE, NTRI, VSI, KMI, APA, DRQ, FI, BXP, HCP, HTA, BRX, SNH, OFC, CLPR, CHRS, DEPO, DOC, HR, NUVA, TBPH, JCI, APOG, DORM, LBY, MRCY, SUP, PAA, HWKN, BELFB, CATM, CLFD, LQDT, SSYS, S, ATNI, WO
8/8/2018	Wright Reports	Wright Investors Service Comprehensive Report for Apache Corporation
8/8/2018	Macquarie Research	Macquarie: Apache Corp (APA US) (Underperform) - Alpine High Midstream Deal Unlikely to Meet Expectations
8/9/2018	Wolfe Research	Oil & Gas Exploration & Production - APA: Deep into Altus at Alpine High
8/9/2018	Cowen and Company	Apache Announces Agreement to Create Altus Midstream Company
8/9/2018	Scotiabank GBM	SHW Morning Energy Commentary - Aug 9 2018 - Appalachian Energy, EQT / EQM / EQGP, LNG / CQP / CQH , APA, ETP, FANG, HPR, MUR, OXY, PDCE, SO, Weekly Refining Indicators Report
8/9/2018	NatAlliance	Apache Corp Smartly Forms A New Midstream C-Corp Called Altus
8/9/2018	Seaport Global Securities LLC	Seaport Global Energy Daily (08-09-18) - APA, ATO, AXAS, CLR, CPK, CRK, FANG, FI, HPR, KEG, MCF, NGS, NOG, PDCE, PE, PXD, REI, SND, TRGP, WRD, XEC
8/9/2018	Societe Generale	Apache Corp (Buy, TP=\$53) - Corporate news - Altus Midstream, a consolidated, but non-recourse 'C' Corp, with \$900MM capital infusion that is APA's A.H. monetization solution. - J. Herrlin (1p)
8/9/2018	Scotiabank GBM	Monetizes Alpine High Midstream into C Corp

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
8/9/2018	BofA Global Research	Apache Corp: Altus Midstream: locks in an illiquid asset - not quite what the market expected
8/9/2018	BofA Global Research	Apache Corp.: APA monetizing Alpine High midstream, though not an outright sale; U/G to MW
8/9/2018	UBS Equities	Apache Corporation "Midstream Solution Unveiled" (Sell) Byrne
8/9/2018	EVERCORE ISI	Midstream Monetization (of Sorts)
8/10/2018	JPMorgan	Apache Corp : Playing the Long Game; Views on Alpine High Midstream Monetization - ALERT
8/14/2018	Sadif Analytics Prime	Rating Update for Apache Corp
8/19/2018	EVERCORE ISI	Crosscurrents make for a challenging tape
8/20/2018	JPMorgan	Apache Corp : 2Q18 Model Update
8/21/2018	Societe Generale	Apache Corp (Buy, TP=\$53) - EPS upgrade - Revised EPS/DCFPS projections - J. Herrlin (1p)
8/21/2018	Macquarie Research	Macquarie: Cross-border shopping - North American fundamentals on strip pricing
8/24/2018	Scotiabank GBM	Updating Estimates
8/27/2018	BuySellSignals Research	Apache shares post best quarter in seven quarters
8/27/2018	Macquarie Research	Macquarie: Cross-border shopping - North American fundamentals on strip pricing
8/30/2018	Corporate Watchdog Reports	Watchdog Report: APA
8/30/2018	Seaport Global Securities LLC	Seaport Global Energy Daily (08-30-18) - Conference Day 2 Quick Takes: APA, COG, CRK, CVIA, ECR, FTK, HK, HPR, NBR, NGS, SOI, TALO, WRD, WTI, WTTR, Great Western, Roan Resources
8/30/2018	Sadif Analytics Prime	Rating Update for Apache Corp
8/31/2018	Argus Research Corporation	Argus Analyst Report, APA
9/6/2018	GlobalData	Apache Corp (APA) - Financial and Strategic SWOT Analysis Review
9/13/2018	Zacks Equity Research	Apache Corporation(APA) Zacks Company Report
9/17/2018	Stephens Inc.	Afternoon Research Summary
9/17/2018	Stephens Inc.	Alpine High, Altus, & FCF Generation Create Compelling Story, Initiating OW
9/24/2018	Stephens Inc.	Mid-Day Research Summary
9/24/2018	Stephens Inc.	Emerging Positive Tailwinds Are Resonating; Increasing Target
9/27/2018	Zacks Equity Research	Apache Corporation(APA) Zacks Company Report
9/27/2018	Scotiabank GBM	Higher Near-Term Oil Assumptions Elevate Estimates
10/3/2018	Zacks Equity Research	Apache Corporation(APA) Zacks Company Report
10/4/2018	Wright Reports	Wright Investors Service Comprehensive Report for Apache Corporation
10/5/2018	Sadif Analytics Prime	Should Investors Steer Clear of the Apache Corp?
10/8/2018	Societe Generale	Apache Corp (Buy, TP=\$53) - EPS upgrade - Revising EPS/DCFPS estimates - J. Herrlin (1p)
10/12/2018	MUFG Securities Americas Inc.	Apache Model
10/12/2018	Sadif Analytics Prime	Rating Update for Apache Corp
10/16/2018	Zacks Equity Research	Apache Corporation(APA) Zacks Company Report
10/17/2018	Seaport Global Securities LLC	Management Quick Takes Ahead of Q3: APA, DVN, MRO and NFX
10/17/2018	Seaport Global Securities LLC	Updating Estimates Ahead of Q3:18
10/17/2018	Seaport Global Securities LLC	Seaport Global Energy Daily (10-17-18) - APA, CRZO, DVN, MRO, MTDR, NFX
10/19/2018	Stephens Inc.	Mid-Day Research Summary
10/19/2018	Stephens Inc.	Updating 3Q/18 Estimates For Commodity Pricing
10/19/2018	Validea	Validea Guru Analysis Report for APA. Analysis using Validea's interpretation of the published quantitative strategies of well-known Wall Street experts including Peter Lynch, Warren Buffett, Ben Graham and Ken Fisher, among others.

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
10/19/2018	JPMorgan	Apache Corp : 3Q18 Preview: Anticipating Solid Results; Potential Swan Song for the Mid-Con
10/24/2018	Scotiabank GBM	3Q18 Earnings Preview - A Thousand Ways to Probe 2019
10/31/2018	BMO Capital Markets	APA: 3Q Beats on Oil Realizations, Volumes in Line on Higher Capex
10/31/2018	Jefferies	3Q Beat; Reinstates Share Repurchase Program
10/31/2018	RBC Capital Markets	Apache Corporation - APA - 3Q18 Earnings Beat; Good 2019 Outlook
10/31/2018	Marktfeld	Apache Corp: Ownership Timelines & Shareholder Analytics (October 2018)
10/31/2018	Wolfe Research	Oil & Gas Exploration & Production - Daily Dose of Earnings to Come
10/31/2018	ValuEngine, Inc	ValuEngine Rating and Forecast Report for APA
10/31/2018	Macquarie Research	Macquarie: Apache Corp (APA US) (Underperform) - Mixed Bag of Treats
11/1/2018	EVERCORE ISI	Diversification has its benefits
11/1/2018	Societe Generale	Apache Corp (Buy, TP=\$53) - Quarterly results - Continuing to deliver volume based cash flow and adj. EPS growth; 2019 capex 3% lower but output +11% - J. Herrlin (1p)
11/1/2018	NatAlliance	Apache Corp 2018 Production Up 0.2% On 6% CapEx Bump
11/1/2018	Wolfe Research	Oil & Gas Exploration & Production - APA: Joining the Share Repurchase Club
11/1/2018	Scotiabank GBM	SHW Morning Energy Commentary - Nov 1 2018 - AR / AM / AMGP, Western Gas, APA, ECR, HESM, HPR, MTDR, NBL, SRCL, TGE, WEC, WPX
11/1/2018	Seaport Global Securities LLC	Seaport Global Energy Daily (11-01-18) - APA, APC, CXO, ECR, HCC, HCLP, HK, HOS, HPR, JONE, LGCY, MTDR, NBR, NE, NFX, SNDE, SOI, SRCL, WLL, WMB, WPX, WTI
11/1/2018	Seaport Global Securities LLC	Q3 First Look: Capex... so hot right now
11/1/2018	Scotiabank GBM	2019 is Looking More Favorable Than 2018; Execution is Critical
11/1/2018	Stephens Inc.	First Look: Stronger-Than-Expected Cash Margins; Share Repurchase Program
11/1/2018	Credit Suisse	APA: 3Q Beats; Solid 2019 Guidance & Jump Starts Share Repurchase Program
11/1/2018	BofA Global Research	Apache Corp: 3Q18 earnings recap: EPS beat, c/flow in-line; Alpine gas drives sequential growth
11/1/2018	Piper Sandler Companies	Q3'18 Quick Look: More Questions Than Answers
11/1/2018	JPMorgan	Apache Corp : 3Q18 Flash: Upside Results; Expecting In-Line 2019 Volumes at Lower Capex; Stock Reaction-Positive - ALERT
11/1/2018	UBS Equities	First Read: Apache Corporation "Beat in Quarter; Production Mix, Capex Focus"
11/2/2018	RBC Capital Markets	Apache Corporation - The Proof is in the Pudding
11/2/2018	Stephens Inc.	Mid-Day Research Summary
11/2/2018	Stephens Inc.	Decreasing Target, Company Focused on Returning Value to Shareholders
11/2/2018	Seaport Global Securities LLC	Seaport Global Energy Daily (11-02-18) - APA, BAS, ECR, GPOR, HPR, LGCY, LLEX, MTDR, PE, SM, SN, SOI, SRCL, WPX, WTI
11/2/2018	Macquarie Research	Macquarie: Apache Corp (APA US) (Upgrade to Neutral) - Risks Being More Accurately Reflected
11/5/2018	CFRA Equity Research	Apache Corporation
11/5/2018	MUFG Securities Americas Inc.	Free Cash Flow Within Sight as Spending Remains Disciplined
11/6/2018	CFRA Equity Research	Apache Corporation
11/7/2018	Argus Research Corporation	Argus Analyst Report, APA
11/9/2018	Acquisdata	Apache Corporation (NYSE- APA)
11/13/2018	Zacks Equity Research	Apache Corporation(APA) Zacks Company Report
11/13/2018	Scotiabank GBM	Large-Cap E&P Earnings Roundup

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
11/15/2018	MUFG Securities Americas Inc.	APA 3Q18 Model Update
11/15/2018	Jefferies	Waiting on an Unconstrained Alpine High
11/19/2018	BuySellSignals Research	Apache shares post worst quarter in five quarters
11/19/2018	Sadif Analytics Prime	Rating Update for Apache Corp
11/20/2018	JPMorgan	Apache Corp : Model Update
11/21/2018	Corporate Watchdog Reports	Watchdog Report: APA - Detailed Due Diligence Report for Professionals
11/21/2018	EVERCORE ISI	Plan the Work, Work the Plan
11/21/2018	Zacks Equity Research	Apache Corporation(APA) Zacks Company Report
11/26/2018	EVERCORE ISI	The Waiting Game
11/29/2018	Cowen and Company	Initiate APA at Market Perform
11/29/2018	Cowen and Company	Initiation of Coverage: Free Cash Dreams, \$50 Reality
12/2/2018	Wright Reports	Wright Investors Service Comprehensive Report for Apache Corporation
12/4/2018	RBC Capital Markets	Apache Corporation - Garten Online at Good Production Rate
12/4/2018	Seaport Global Securities LLC	Management quick takes heading into 2019: APA, MRO and PXD
12/4/2018	Seaport Global Securities LLC	Mgmt. quick takes and estimates update
12/4/2018	Seaport Global Securities LLC	Seaport Global Energy Daily (12-04-18) - APA, MRO, PXD, TALO, Coal Weekly
12/4/2018	Macquarie Research	Macquarie: Apache Corp (APA US) (Neutral) - Slight Encouragement from the Garten Start
12/5/2018	Stephens Inc.	Afternoon Research Summary
12/5/2018	GlobalData	Apache Corp (APA) - Financial and Strategic SWOT Analysis Review
12/5/2018	Stephens Inc.	Updating Target Price Post Commodity Outlook Changes
12/6/2018	Seaport Global Securities LLC	Seaport Global Energy Daily (12-06-18) - Pre-OPEC Macro Comments, APA, CDEV, CRZO, CXO, HK, HPR, JAG, METC, PDCE, SLB, WLL, XEC
12/7/2018	JPMorgan	Large Cap E&P : Revising Estimates for Sharp Retrenchment in Oil Prices; Upgrade EOG to OW from N; Downgrade DVN and CHK
12/10/2018	Seaport Global Securities LLC	Upgrading to Neutral
12/18/2018	Societe Generale	Apache Corp (Buy, TP=\$34) - 12m target downgrade - Reducing target price and EPS/DCFPS estimates - J. Herrlin (1p)
12/18/2018	Zacks Equity Research	Apache Corporation(APA) Zacks Company Report
12/26/2018	Plunkett Research, Ltd.	Apache Corporation: Analytics, Extensive Financial Metrics, and Benchmarks Against Averages and Top Companies Within Its Industry
12/27/2018	Boston Energy Research	Undervaluead Apache is a Buy
12/31/2018	BuySellSignals Research	Apache falls for a second consecutive year in FY 2018, a two-year fall of 58%
1/3/2019	Zacks Equity Research	Apache Corporation(APA) Zacks Company Report
1/3/2019	Sadif Analytics Prime	Rating Update for Apache Corp
1/11/2019	Zacks Equity Research	Apache Corporation(APA) Zacks Company Report
1/15/2019	Seaport Global Securities LLC	Q4:18 Preview Mgmt. Quick Take
1/15/2019	Seaport Global Securities LLC	Management quick takes heading into Q4:18 earnings: APA, APC, PXD
1/15/2019	Seaport Global Securities LLC	Seaport Global Energy Daily (01-15-19) - APA, APC, ESV/RDC, FTK, PXD, Coal Weekly, Expert Call Series
1/16/2019	Barclays	North America Oil & Gas E&P: Initiate APA, FANG, SM, PE, WPX, XEC; Upgrade CXO; Downgrade DVN, CDEV & CPE

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
1/16/2019	Stock Traders Daily Research	Comprehensive Technical and Fundamental Analysis for APA. This reports includes The Investment Rate, a macroeconomic leading indicator, and Market Analysis.
1/17/2019	Stock Traders Daily Research	Comprehensive Technical and Fundamental Analysis for APA. This reports includes The Investment Rate, a macroeconomic leading indicator, and Market Analysis.
1/18/2019	Cowen and Company	4Q18 Preview: Recalibrate Good Times. Come On
1/18/2019	RBC Capital Markets	Apache Corporation - Model Update
1/19/2019	Plunkett Research, Ltd.	Apache Corporation: Analytics, Extensive Financial Metrics, and Benchmarks Against Averages and Top Companies Within Its Industry
1/21/2019	Stock Traders Daily Research	Comprehensive Technical and Fundamental Analysis for APA. This reports includes The Investment Rate, a macroeconomic leading indicator, and Market Analysis.
1/22/2019	Stock Traders Daily Research	Comprehensive Technical and Fundamental Analysis for APA. This reports includes The Investment Rate, a macroeconomic leading indicator, and Market Analysis.
1/23/2019	Stock Traders Daily Research	Comprehensive Technical and Fundamental Analysis for APA. This reports includes The Investment Rate, a macroeconomic leading indicator, and Market Analysis.
1/24/2019	Credit Suisse	APA: Lowering 4Q CFPS on Weak Price Realizations
1/24/2019	Stock Traders Daily Research	Comprehensive Technical and Fundamental Analysis for APA. This reports includes The Investment Rate, a macroeconomic leading indicator, and Market Analysis.
1/24/2019	Macquarie Research	Macquarie: Apache Corp (APA US) (Neutral) - 4Q18 Pricing Update and Thoughts into the Quarter
1/25/2019	Societe Generale	Apache Corp (Buy, TP=\$34) - EPS downgrade - 4Q18 EPS estimate reduction on dry hole costs - J. Herrlin (1p)
1/25/2019	Cowen and Company	APA Estimates Update
1/25/2019	Validea	Validea Guru Analysis Report for APA. Analysis using Validea's interpretation of the published quantitative strategies of well-known Wall Street experts including Peter Lynch, Warren Buffett, Ben Graham and Ken Fisher, among others.
1/25/2019	Stock Traders Daily Research	Comprehensive Technical and Fundamental Analysis for APA. This reports includes The Investment Rate, a macroeconomic leading indicator, and Market Analysis.
1/25/2019	Sadif Analytics Prime	Rating Update for Apache Corp
1/26/2019	Stock Traders Daily Research	Comprehensive Technical and Fundamental Analysis for APA. This reports includes The Investment Rate, a macroeconomic leading indicator, and Market Analysis.
1/27/2019	Stock Traders Daily Research	Comprehensive Technical and Fundamental Analysis for APA. This reports includes The Investment Rate, a macroeconomic leading indicator, and Market Analysis.
1/28/2019	Stock Traders Daily Research	Comprehensive Technical and Fundamental Analysis for APA. This reports includes The Investment Rate, a macroeconomic leading indicator, and Market Analysis.
1/29/2019	MUFG Securities Americas Inc.	Model Update to Reflect Guidance
1/29/2019	Seaport Global Securities LLC	Estimates Update Ahead of Q4 Earnings
1/29/2019	Stock Traders Daily Research	Comprehensive Technical and Fundamental Analysis for APA. This reports includes The Investment Rate, a macroeconomic leading indicator, and Market Analysis.
1/30/2019	Barclays	North America Oil & Gas: E&P: Model Updates and Thoughts on the Quarters (APA, PXD, EOG)
1/30/2019	RBC Capital Markets	Apache Corporation - Model Update
2/5/2019	Sadif Analytics Prime	Will Apache Corp Deliver Long-Term Returns?
2/7/2019	Seaport Global Securities LLC	Closing 2019's FCF deficit, but not without consequence to 2020+
2/7/2019	BMO Capital Markets	APA: 2019 Capex Reduced to E&P CF; Better U.S. Exit Rate, but We Lower Oil on Int'l

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
2/7/2019	Cowen and Company	Cutting '19 Deep. Less Painful than Expected
2/7/2019	Wright Reports	Wright Investors Service Comprehensive Report for Apache Corporation
2/7/2019	Barclays	E&P Topic Du Jour: Make or Break Time for E&Ps; Which Capex Cuts Are Priced in? A Fundamental Look
2/7/2019	Macquarie Research	Macquarie: Apache Corp (APA US) (Neutral) - 2H19 Production Growth Presents Risk to FCF
2/8/2019	BofA Global Research	Apache Corp: Capital discipline: but lower guidance still not enough to offset the mix shift to gas
2/8/2019	Scotiabank GBM	SHW Morning Energy Commentary - Feb 8 2019 - LNG / CQP, APA, DTE, GLNG, GMLP, NEXT, TELL
2/8/2019	Societe Generale	Apache Corp (Buy, TP=\$34) - Corporate news - 2019 capex budget revised lower by 20% to \$2.4 billion - J. Herrlin (1p)
2/8/2019	Scotiabank GBM	Lowering 2019 Spending to Better Align with Cash Flow
2/8/2019	Piper Sandler Companies	The Commodity Made Me Do It: FY19 Budget Slashed 20%
2/8/2019	Morgan Stanley	Apache Corp.: Improved 2019 Outlook
2/8/2019	Credit Suisse	APA: Decoding APA's Revised 2019 Guidance
2/8/2019	Barclays	APA: 2019 Outlook Released - A Capital Discipline Litmus Test
2/8/2019	Seaport Global Securities LLC	Seaport Global Energy Daily (02-08-19) - APA, ATO, NJR, NOV, OFS comps
2/8/2019	ValuEngine, Inc	ValuEngine Rating and Forecast Report for APA
2/8/2019	JPMorgan	Apache Corp : 2019 Guidance Update Implies Lower 1H19 Production, But Stronger Exit Rate - ALERT
2/8/2019	EVERCORE ISI	2019 Guidance In-line with our Expectations
2/8/2019	UBS Equities	First Read: Apache Corporation "FY19 Guidance Revised, More Details Sought"
2/8/2019	Stephens Inc.	First Look:'19 Capex & Production Outlook; 4Q19 Y/Y Growth Better-Than-Expected
2/11/2019	EVERCORE ISI	It's All Becoming a Little Clearer
2/11/2019	BMO Capital Markets	Model Book - 4Q18 Earnings & Company Updates
2/12/2019	Zacks Equity Research	Apache Corporation(APA) Zacks Company Report
2/15/2019	BMO Capital Markets	Model Book Week 2 - 4Q18 Earnings & Company Updates
2/18/2019	MUFG Securities Americas Inc.	APA Model Update
2/19/2019	Sadif Analytics Prime	Rating Update for Apache Corp
2/20/2019	BuySellSignals Research	Apache, held by Dodge & Cox, up 39% off its lows
2/20/2019	Cowen and Company	NAPE Conference Survey Shows a More Tentative Private Market
2/20/2019	Seaport Global Securities LLC	Seaport Global Energy Daily (02-20-19) - APA, CLR, CXO, DVN, FANG, SLCA
2/20/2019	Seaport Global Securities LLC	Estimates Update
2/25/2019	Credit Suisse	2019 Vail Energy Summit: Key Takeaways VIDEO
2/27/2019	Cowen and Company	APA 4Q18 Quick Take
2/27/2019	Seaport Global Securities LLC	Q4 First Look: 2% Oil beat; 2% FY19 production guidance raise
2/27/2019	JPMorgan	Apache Corp : Model Update
2/27/2019	BMO Capital Markets	4Q Oil Better, but on Higher Capex; 2019 Production in Line
2/27/2019	Jefferies	4Q18 Beat, Increased FY19 Production Guidance
2/27/2019	RBC Capital Markets	Apache Corporation - APA - 4Q18 CFPS in Line with Consensus; 2019 Production Guide Slightly Better
2/27/2019	Macquarie Research	Macquarie: Apache Corp (APA US) (Neutral) - Permian Oil Beat but Quarter comes with Noise
2/28/2019	JPMorgan Econ & FI	Apache Corp : 4Q18: Decent Results, Strong U.S. Oil Growth, Production Guidance Increased, Breakeven at Mid-40s WTI
2/28/2019	EVERCORE ISI	In Line Q, Adapting to the environment with knock on effects
2/28/2019	Wolfe Research	Oil & Gas Exploration & Production - APA: Hoping for More from the L-T Outlook

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
2/28/2019	Barclays	APA: Q4'18 CFPS Miss; Positive Capital Discipline Messaging But Questions Remain on Alpine High Growth
2/28/2019	BofA Global Research	Apache Corp: 4Q18 earnings recap: headline beat on Egypt tax; outlook still anchored on gas
2/28/2019	Piper Sandler Companies	Q4'18 Quick Look: Permian Oil Beat; FY19 Vol Guide Raised
2/28/2019	Scotiabank GBM	SHW Morning Energy Commentary - Feb 28 2019 - APA, GLNG, GMLP, GPOR, KOS, PDCE, PEG, TELL
2/28/2019	Societe Generale	Apache Corp (Buy, TP=\$34) - Quarterly results - 4Q18 Adj. EPS/DCFPS in line/above our estimates; 2019 cap-ex plan unchanged; a Suriname wildcat; partner? - J. Herrlin (1p)
2/28/2019	Scotiabank GBM	4Q18 EBITDAX In Line; Minor Tweaks to 2019 Production Outlook
2/28/2019	Seaport Global Securities LLC	Seaport Global Energy Daily (02-28-19) - APA, CPE, ESV, GPOR, HPR, MTDR, OAS, PDCE, REI, SOI, WLL, WTI
2/28/2019	Credit Suisse	APA: Raising 2019 Estimates; FCF Neutral with High Single-Digit Growth at \$50-55/Bbl in 2019-21
2/28/2019	JPMorgan	Apache Corp : 4Q18 Flash: Permian Oil Beat and 2019 Guidance Bump; Stock Reaction-Positive - ALERT
2/28/2019	Stephens Inc.	First Look: 4Q18 Results & Incremental '19 Guide
3/1/2019	Seaport Global Securities LLC	Seaport Global Energy Daily (03-01-19) - APA, BAS, ECR, GPOR, JAG, PDCE, SOI, WTI, WTTR
3/4/2019	Argus Research Corporation	Argus Analyst Report, APA
3/4/2019	CFRA Equity Research	Apache Corporation
3/5/2019	Plunkett Research, Ltd.	Apache Corporation: Analytics, Extensive Financial Metrics, and Benchmarks Against Averages and Top Companies Within Its Industry
3/5/2019	Acquisdata	Apache Corporation (NYSE- APA)
3/6/2019	Barclays	Post Q4'18 Model Updates: APA, CXO, CLR, MRO, NBL - Where Do We Go From Here?
3/6/2019	MUFG Securities Americas Inc.	Flexible Program Should be a Positive
3/6/2019	CFRA Equity Research	Apache Corporation
3/6/2019	Scotiabank GBM	Large-Cap E&P Earnings Roundup
3/8/2019	RBC Capital Markets	Apache Corporation - Getting Wet in Alpine High
3/8/2019	Wolfe Research	Oil & Gas Exploration & Production - Hitting The Reset Button, Now Time To Stick To Plans
3/11/2019	Stephens Inc.	Estimates Update: Slightly Higher Production, Target Remains Unchanged
3/11/2019	RBC Capital Markets	Research at a Glance - [U.S.] Mar 11,2019
3/11/2019	Cowen and Company	4Q18 E&P Recap; Free Cash Isn't Free
3/12/2019	Zacks Equity Research	Apache Corporation(APA) Zacks Company Report
3/19/2019	Corporate Watchdog Reports	Watchdog Report: APA - Red Flags and Warning Signs
3/19/2019	GlobalData	Apache Corp (APA) - Financial and Strategic SWOT Analysis Review
3/19/2019	Jefferies	De-Emphasizing Alpine High Growth
3/20/2019	Societe Generale	Apache Corp (Buy, TP=\$40) - 12m target upgrade - Raising target price; revising EPS/DCFPS estimates - J. Herrlin (1p)
3/21/2019	Seaport Global Securities LLC	Mgmt. quick takes - incrementally positive outlook on Permian ops risk, Suriname upside, and shareholder return of capital
3/21/2019	EVERCORE ISI	A Chemical Plume, a Dead Horse, and Wall to Wall Energy Meetings
3/22/2019	Wolfe Research	Oil & Gas Exploration & Production - Takeaways From Houston
3/22/2019	Seaport Global Securities LLC	Seaport Global Energy Daily (03-22-19) - APA, CVIA, TELL, OFS comps
3/25/2019	EVERCORE ISI	Going Deep
3/27/2019	Stephens Inc.	Mid-Day Research Summary
3/27/2019	Stephens Inc.	Takeaways From Non-Deal Roadshow
4/1/2019	EVERCORE ISI	Showing maturity from the field level up
4/2/2019	Wolfe Research	Oil & Gas Exploration & Production - The Energy Gauge: No Reason To Fear The Ides Of March

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
4/4/2019	Wolfe Research	Oil & Gas Exploration & Production – 1Q19 M&A Review: Hello - Is There Anybody Out There?
4/4/2019	Credit Suisse	Oil & Gas E&P: Raising Oil but Lowering Gas Price Forecast for 2019; No Change to 2020+
4/5/2019	BMO Capital Markets	Notes From the Road
4/9/2019	Zacks Equity Research	Apache Corporation(APA) Zacks Company Report
4/9/2019	Macquarie Research	Macquarie: Apache Corp (APA US) (Neutral) - Investigating Incentives
4/10/2019	Seaport Global Securities LLC	Provides supplemental Q1 Update
4/10/2019	RBC Capital Markets	Apache Corporation - APA: Pre-Quarter Supplement In Line with Our Expectations
4/11/2019	MUFG Securities Americas Inc.	APA Model
4/11/2019	Seaport Global Securities LLC	Seaport Global Morning Notes
4/11/2019	Seaport Global Securities LLC	Seaport Global Energy Daily (04-11-19) - APA
4/17/2019	Societe Generale	Apache Corp (Buy, TP=\$40) - Termination of coverage - J. Herrlin (1p)
4/22/2019	Barclays	North America Oil & Gas: E&P: Q1'19 Model Updates and Previews: XEC, APA and EOG
4/23/2019	BuySellSignals Research	Apache forty-second best performer of S&P 500 Index in 2019
4/23/2019	Stephens Inc.	First Look: APA Announces Temporary Deferral of Alpine High Gas Volumes
4/23/2019	Scotiabank GBM	SHW Morning Energy Commentary - Apr 23 2019 - APA, HAL, HLX, RRC, SRCI, Gas Weekly Update
4/23/2019	Scotiabank GBM	Alpine High Natural Gas Production Deferred Due to Pricing
4/23/2019	RBC Capital Markets	Apache Corporation - APA - Deferring Alpine High Natural Gas due to Poor Pricing
4/23/2019	Macquarie Research	Macquarie: Apache Corp (APA US) (Neutral) - Effects of Negative Waha Prices
4/24/2019	Seaport Global Securities LLC	Estimates Update
4/28/2019	Cowen and Company	1Q19 Preview: Keeping One's Vows
4/28/2019	Barclays	Apache Corporation: Estimated Alpine High Base Production Breakevens Now vs. YE'19; Model Update for Deferrals
4/29/2019	BMO Capital Markets	1Q19 Model Book Week 1
4/29/2019	JPMorgan	E&P Game of Thrones (Part I) : View to 2025 Deep Dive for Diversified Stocks; Upgrade NBL; Downgrade APC
4/30/2019	Scotiabank GBM	Updating Estimates for Earnings
5/1/2019	Jefferies	1Q19 Miss, 2019 Capex and Exit Rate Growth Reaffirmed
5/1/2019	BMO Capital Markets	1Q19 Vols Better With Capex in Line; 2019 Trimmed on Alpine Curtailments
5/1/2019	Piper Sandler Companies	Q1'19 Quick Look: Solid Result, While Market Waits on Suriname
5/1/2019	Scotiabank GBM	1Q19 Results: Quarter Overshadowed by Difficult 2Q19 Outlook
5/1/2019	Cowen and Company	APA 1Q19 Quick Take
5/1/2019	RBC Capital Markets	Apache Corporation - APA - 1Q19 Earnings In Line with Consensus; Spending Below Expectations
5/1/2019	ValuEngine, Inc	ValuEngine Rating and Forecast Report for APA
5/1/2019	Macquarie Research	Macquarie: Apache Corp (APA US) (Neutral) - Balancing Expectations, Potential Shareholder Friendly Actions and Exploratory Work
5/2/2019	RBC Capital Markets	Apache Corporation - The Waiting Game
5/2/2019	MUFG Securities Americas Inc.	Turning A Corner Cryogenically in the Second Half?
5/2/2019	Wolfe Research	Oil & Gas Exploration & Production - APA: Paramaribo Dreamin'
5/2/2019	EVERCORE ISI	1Q19 Puts & Takes
5/2/2019	CFRA Equity Research	Apache Corporation
5/2/2019	Stephens Inc.	First Look: Solid 1Q19 Results; 2Q19 Guide
5/2/2019	Seaport Global Securities LLC	5/1 AMC E&P Earnings First Looks: APA, MRO, MTDR, PDCE, PE, SM, SRCI, WLL, WPX, WTI

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
5/2/2019	Barclays	APA/MRO Avoid the Q1 Double Edge Sword
5/2/2019	Credit Suisse	APA: Still Waiting for FCF Inflection; Trimming Ests
5/2/2019	BofA Global Research	Apache Corp: 1Q19 earnings recap: in line, curtailments underline the difficulty of growing gas
5/2/2019	Seaport Global Securities LLC	Seaport Global Energy Daily (05-02-19) - APA, BTU, CXO, HCC, MRO, MTDR, PDCE, PE, SLCA, SM, SRCI, WLL, WMB, WPX, WTI
5/2/2019	JPMorgan	Apache Corp : 1Q19 Upside Oil + Lower Upstream Capex = Positive View - ALERT
5/2/2019	Macquarie Research	Macquarie: Apache Corp (APA US) (Neutral) - Balancing NT Catalysts and Alpine High Risks
5/2/2019	UBS Equities	First Read: Apache Corporation "Q1 Beats EBITDAX; Several Other Moving Pieces"
5/3/2019	CFRA Equity Research	Apache Corporation
5/3/2019	JPMorgan Econ & FI	Apache Corp : 1Q19: Mixed Results, Production Above Guide But May Be Weaker in 2Q, LOE Guide Raised, Plan to Retire July Maturity
5/3/2019	Seaport Global Securities LLC	Seaport Global Energy Daily (05-03-19) - APA, CTRA, GPOR, MRO, MTDR, NBR, PDCE, PE, PES, SM, SRCI, WLL, WPX, WTI, OFS Comps
5/6/2019	BMO Capital Markets	E&P Model Book - Week 2
5/6/2019	CFRA Equity Research	Apache Corporation
5/8/2019	Argus Research Corporation	Argus Analyst Report, APA
5/9/2019	Acquisdata	Apache Corporation (NYSE- APA)
5/9/2019	Stock Traders Daily Research	Comprehensive Technical and Fundamental Analysis for APA. This reports includes The Investment Rate, a macroeconomic leading indicator, and Market Analysis.
5/10/2019	Stock Traders Daily Research	Comprehensive Technical and Fundamental Analysis for APA. This reports includes The Investment Rate, a macroeconomic leading indicator, and Market Analysis.
5/13/2019	Zacks Equity Research	Apache Corporation(APA) Zacks Company Report
5/13/2019	EVERCORE ISI	The Lost Year
5/14/2019	Corporate Watchdog Reports	Watchdog Report: APA - Red Flags and Warning Signs
5/14/2019	CFRA Equity Research	Apache Corporation
5/16/2019	BuySellSignals Research	Apache accelerates decline, down 36% in 2 years
5/17/2019	Morningstar, Inc.	Morningstar Initiating Coverage of Apache; Shares Fairly Valued
5/17/2019	Jefferies	Weekly US Upstream Monitor
5/18/2019	Morningstar, Inc.	Morningstar APA Updated Star Rating from 17 May 2019
5/20/2019	Zacks Equity Research	Apache Corporation(APA) Zacks Company Report
5/20/2019	Stock Traders Daily Research	Comprehensive Technical and Fundamental Analysis for APA. This reports includes The Investment Rate, a macroeconomic leading indicator, and Market Analysis.
5/22/2019	Cowen and Company	1Q19 E&P Recap: Keep Your Eyes on the Free Cash Horizon
5/22/2019	Credit Suisse	EPS Changes: 4% or Less: 5/22/19
5/23/2019	Seaport Global Securities LLC	Estimates Update
5/23/2019	Seaport Global Securities LLC	Seaport Global Energy Daily (05-23-19) - USWS Initiation; E&P model updates: APA, AXAS, CDEV, COG, CXO, DVN, ESTE, FANG, GDP, MRO, MTDR, NOG, OAS, PDCE, PXD, SRCI, WLL, WPX, WTI, XEC
5/28/2019	Barclays	Apache Corporation: Where Do We Go From Here? It's Still Suriname; Liza-1 'Equivalent' Math
5/30/2019	Zacks Equity Research	Apache Corporation(APA) Zacks Company Report
5/30/2019	Stephens Inc.	Updating Estimates Post 1Q19 Earnings

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
6/3/2019	Wolfe Research	Oil & Gas Exploration & Production - APA: Upgrading To Peer Perform Ahead Of Suriname
6/4/2019	RBC Capital Markets	Apache Corporation - APA - Highlights from the RBC Global Energy and Power Executive Conference
6/5/2019	Wolfe Research	Oil & Gas Exploration & Production - The Energy Gauge: Mayday, Mayday!
6/6/2019	Stock Traders Daily Research	Comprehensive Technical and Fundamental Analysis for APA. This reports includes The Investment Rate, a macroeconomic leading indicator, and Market Analysis.
6/6/2019	Sadif Analytics Prime	Will Apache Corp Continue its Slide?
6/7/2019	Morningstar, Inc.	Morningstar Most E&Ps Undervalued After Oil Price Slump; Our Top Picks Are Diamondback, Pioneer, and Laredo
6/9/2019	UBS Equities	NorAm E&P: CoW "The Macro; Hedging; Spreads; Incremental on NBL, OXY, APA, ..."
6/10/2019	Stock Traders Daily Research	Comprehensive Technical and Fundamental Analysis for APA. This reports includes The Investment Rate, a macroeconomic leading indicator, and Market Analysis.
6/11/2019	Seaport Global Securities LLC	Seaport Global Morning Notes
6/11/2019	Seaport Global Securities LLC	Seaport Global Energy Daily (06-11-19) - APA, BAS, CRK, PAA, Coal Weekly
6/11/2019	Seaport Global Securities LLC	Mgmt quick take - Incremental data points on Alpine High, Suriname, and more
6/12/2019	Stock Traders Daily Research	Comprehensive Technical and Fundamental Analysis for APA. This reports includes The Investment Rate, a macroeconomic leading indicator, and Market Analysis.
6/13/2019	Stock Traders Daily Research	Comprehensive Technical and Fundamental Analysis for APA. This reports includes The Investment Rate, a macroeconomic leading indicator, and Market Analysis.
6/14/2019	EVERCORE ISI	Notes from the Road: Upstream, Midstream, LNG and Fajitas to Boot
6/18/2019	GlobalData	Apache Corp (APA) - Financial and Strategic SWOT Analysis Review
6/18/2019	Scotiabank GBM	Suspending Coverage of Select E&P Names
6/20/2019	Zacks Equity Research	Apache Corporation(APA) Zacks Company Report
6/21/2019	Stock Traders Daily Research	Comprehensive Technical and Fundamental Analysis for APA. This reports includes The Investment Rate, a macroeconomic leading indicator, and Market Analysis.
6/21/2019	Jefferson Research	Jefferson Research Financial Sonar Report. A detailed analysis of the current fundamental performance of APACHE CORP including Earnings Quality, Cash Flow Quality, Operating Efficiency, Balance Sheet Quality and Valuation.
6/27/2019	Piper Sandler Companies	Suriname: What's in the Stock? See Near-Term Positive Risk Reward
7/3/2019	Wolfe Research	Oil & Gas Exploration & Production - The Energy Gauge: A Dash Of Volatility To Start Summer
7/9/2019	Barclays	North America Oil & Gas E&P: Q2'19 Preview: UPDATE: Capex is the Proxy for Discipline; H2'19 /2020 Momentum Matters
7/10/2019	Wright Reports	Wright Investors Service Comprehensive Report for Apache Corporation
7/11/2019	Wells Fargo Securities, LLC	Pre 2Q19 Estimate Changes
7/12/2019	JPMorgan	Apache Corp : 2Q19 Earnings Preview: Solid Execution, But Lower Financials on Gas/NGL Weakness; Waiting Patiently for Suriname Rig
7/15/2019	Zacks Equity Research	Apache Corporation(APA) Zacks Company Report
7/15/2019	Jefferies	Leading Edge Doesn't Always Pay, but It Helps: Midland Basin Deep Dive
7/16/2019	Wolfe Research	Oil & Gas Exploration & Production - DEPTH Charting: A Quant Look At E&Ps
7/18/2019	RBC Capital Markets	Apache Corporation - Exits Mid-Cont; 2Q19 Update
7/18/2019	Vermilion Technical Research	Short Shots - Charts highlighted: PKX, CCJ, GTLS, LASR, IPGP, ERIC, SNA, APA, MUR, BP, LLY, ICPT, AERI, INSM, ALDR, FDP, DNOW, HLF, MSTR, SJR, MED, CHRW, CMA, WFC, WTFC, GBCI, FMBI, WSFS, UVE, CNO, EBIX, SPG, PEB, CXW, ORAN, and BT.

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
7/19/2019	MUFG Securities Americas Inc.	2Q19 Pre-Release - Poor Gas Realizations Offset by Oil
7/19/2019	Cowen and Company	Adjusting Model for 2Q Pricing
7/19/2019	BofA Global Research	Apache Corp: 8-K review: further confirmation of weak gas/NGL's pricing; impact on asset sales
7/19/2019	Credit Suisse	APA: Sells Mid-Con Assets for Fair Price; Pricing in Big Suriname Discovery
7/22/2019	BMO Capital Markets	E&P Model Book
7/22/2019	JPMorgan	Apache Corp : Tweaking Estimates for 2Q19 Supplemental Disclosure and Mid-Continent Asset Sale
7/22/2019	Seaport Global Securities LLC	Estimates update ahead of Q2 earnings
7/31/2019	BMO Capital Markets	Permian Oil Weaker in 2Q19; 2H19 Lower on Delays/3Q Alpine Curtailments
7/31/2019	Barclays	North America Oil & Gas: E&P: Model Updates: APA, CXO, EOG, PXD, and XEC
7/31/2019	Wolfe Research	Oil & Gas Exploration & Production - A Guide To E&P Boards
7/31/2019	Barclays	E&P Topic Du Jour: Data Shows Rig Counts Below Guided Levels. Good or Bad News?
7/31/2019	ValuEngine, Inc	ValuEngine Rating and Forecast Report for APA
7/31/2019	Macquarie Research	Macquarie: Apache Corp (APA US) (Neutral) - Softer 2H19 US Production Guidance
7/31/2019	Macquarie Research	Macquarie: Apache Corp (APA US) (Neutral) - Softer 2H19 US Production Guidance
8/1/2019	EVERCORE ISI	Bump & Run in West Texas
8/1/2019	Morningstar, Inc.	Morningstar Apache Hit by Low Natural Gas and NGL Price Realizations in 2Q
8/1/2019	Morningstar, Inc.	Morningstar Apache Has Exposure to Both U.S. Shale and International Markets
8/1/2019	Wolfe Research	Oil & Gas Exploration & Production - APA: Suriname Color Better Be Worth The Wait!
8/1/2019	BofA Global Research	Apache Corp: 2Q19 Earnings recap: solid quarter in a bad (gas weighted) tape
8/1/2019	Jefferies	2Q19 Beat; Lowering US Expectations
8/1/2019	Piper Sandler Companies	Q2'19 Quick Look: Challenging Print to Heighten Focus on Suriname
8/1/2019	Seaport Global Securities LLC	Seaport Global Energy Daily (08-01-19) - APA, BAS, BHGE, BTU, CXO, HCC, MTDR, VAL, WLL, WMB, WTI
8/1/2019	Stephens Inc.	APA First Look: 2Q19 EBITDAX Beat & Capex Below Expectations
8/1/2019	Credit Suisse	APA: 2Q CFPS Light; Trimming Estimates, Rich Valuation
8/1/2019	JPMorgan	Apache Corp : 2Q19 Flash: Despite In-Line Financials and Lower Capex, Lower Permian Guide Will Be the Focus
8/1/2019	Cowen and Company	2Q19 Quick Take: APA: Solid 2Q Though Timing Delays Slow Permian
8/2/2019	MUFG Securities Americas Inc.	Waiting on GCX Pipeline and the Narrowing of Diffs
8/2/2019	CFRA Equity Research	Apache Corporation
8/2/2019	JPMorgan Econ & FI	Apache Corp : 2Q19: Solid Results in the Quarter, Asset Sales Proceeds Used For Debt Reduction, Production Guidance Lowered
8/5/2019	BMO Capital Markets	Model Book - Week 2
8/5/2019	RBC Capital Markets	Apache Corporation - Change is Inevitable
8/5/2019	UBS Equities	Apache Corporation "Q2 Follow Up; Oil & CF Lowered; Reducing PT" (Sell) Byrne
8/6/2019	Wolfe Research	Oil & Gas Exploration & Production - The Energy Gauge: Ain't No Cure for the Summertime Blues
8/6/2019	CFRA Equity Research	Apache Corporation
8/9/2019	Argus Research Corporation	Argus Analyst Report, APA
8/12/2019	Corporate Watchdog Reports	Watchdog Report: APA - Red Flags and Warning Signs
8/12/2019	EVERCORE ISI	Actions Speak Louder than Words
8/13/2019	Acquisdata	Apache Corporation (NYSE- APA)
8/13/2019	Zacks Equity Research	Apache Corporation(APA) Zacks Company Report

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
8/15/2019	BMO Capital Markets	Model Book
8/21/2019	Cowen and Company	2Q19 E&P Recap: Summer Sector Weight Loss
8/22/2019	JPMorgan	Apache Corp : 2Q19 Model Update
8/22/2019	Jefferies	Alpine High Still Getting More Than Its Fair Share
9/2/2019	Sadif Analytics Prime	Rating Update for Apache Corp
9/6/2019	Carbon Tracker	Breaking the Habit – Why none of the large oil companies are “Paris-aligned”, and what they need to do to get there
9/6/2019	GlobalData	Apache Corp (APA) - Financial and Strategic SWOT Analysis Review
9/9/2019	Wolfe Research	Oil & Gas Exploration & Production - The Weekend Energy Jam: ISM vs. Energy Plus - A Catch up with HES
9/10/2019	Zacks Equity Research	Apache Corporation(APA) Zacks Company Report
9/16/2019	Morningstar, Inc.	Morningstar If Quick Repair Does Not Materialize, Saudi Oil Attack Could Send Prices Even Higher
9/16/2019	MKM Partners	Initiating with Neutral; Alpine High De-emphasis, Share Price Embeds Significant Suriname Value
9/16/2019	Wolfe Research	Oil & Gas Exploration & Production - The Weekend Energy Jam: A Conversation with Switchback Energy's CEO, Scott McNeill
9/16/2019	Wolfe Research	Oil & Gas Exploration & Production - Takeaways From Texas Management Meetings
9/17/2019	MKM Partners	Morning Summary
9/18/2019	Wolfe Research	Oil & Gas Exploration & Production - Natural Gas Research: 2019 Power Supply Update – Moving To The Background
9/19/2019	Stock Traders Daily Research	Comprehensive Technical and Fundamental Analysis for APA. This reports includes The Investment Rate, a macroeconomic leading indicator, and Market Analysis.
9/19/2019	Zacks Equity Research	Apache Corporation(APA) Zacks Company Report
9/22/2019	Boston Energy Research	Unappreciated Apache is a Buy
9/23/2019	Wolfe Research	Oil & Gas Exploration & Production - The Weekend Energy Jam: Catching up with ECA
9/23/2019	Truist Securities	Initiating with a Buy Rating and \$32 Price Target; Standing Down at Alpine High
9/24/2019	Truist Securities	Material Upcoming Potential Upside as First Suriname Well Spud
9/25/2019	Stock Traders Daily Research	Comprehensive Technical and Fundamental Analysis for APA. This reports includes The Investment Rate, a macroeconomic leading indicator, and Market Analysis.
9/25/2019	Credit Suisse	EPS Changes: 4% or Less: 9/25/19
9/30/2019	Wolfe Research	Oil & Gas Exploration & Production - The Weekend Energy Jam: Keyser Soze & the E&Ps
10/1/2019	Stock Traders Daily Research	Comprehensive Technical and Fundamental Analysis for APA. This reports includes The Investment Rate, a macroeconomic leading indicator, and Market Analysis.
10/1/2019	Wolfe Research	Oil & Gas Exploration & Production - What Does E&P Credit Say About the Equities?
10/4/2019	Wolfe Research	Oil & Gas Exploration & Production - The Energy Gauge: September Brings Short-Lived Boost To E&Ps
10/7/2019	Cowen and Company	Oil Patch Bus Tour Takeaways
10/8/2019	MUFG Securities Americas Inc.	Dreary 2021 Price Outlook Leads to Downward Revisions to Estimates
10/10/2019	Seaport Global Securities LLC	Estimates update ahead of Q3 earnings
10/10/2019	BMO Capital Markets	3Q19 E&P Preview; Transitioning From Growth to Value
10/14/2019	Wolfe Research	Oil & Gas Exploration & Production - The Weekend Energy Jam: Gold vs. Black Gold
10/14/2019	EVERCORE ISI	More things in heaven and earth, Horatio, than are dreamt of in your philosophy
10/15/2019	Wolfe Research	Oil & Gas Exploration & Production - Facing Uphill Battles: Ratings Changes + 3Q Preview
10/15/2019	Stock Traders Daily Research	Comprehensive Technical and Fundamental Analysis for APA. This reports includes The Investment Rate, a macroeconomic leading indicator, and Market Analysis.

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
10/15/2019	JPMorgan	Apache Corp : 3Q19 Preview: Diet for Alpine High in 2020; Well Watching in Suriname
10/16/2019	RBC Capital Markets	Apache Corporation - APA - Supplemental Quarterly Information Largely In Line to Expectations
10/17/2019	Cowen and Company	3Q19 E&P Preview: Merger Mania
10/18/2019	BuySellSignals Research	Apache falls 13% in 2019, underperforming 86% of the market
10/18/2019	BofA Global Research	Apache Corp: Suriname exploration: too big to ignore, too uncertain to Buy. Upgrade to Neutral
10/18/2019	Zacks Equity Research	Apache Corporation(APA) Zacks Company Report
10/21/2019	Wolfe Research	Oil & Gas Exploration & Production - The Weekend Energy Jam: Feedback From Our Updated Sector Views & Ratings Changes
10/21/2019	Barclays	Apache Corporation: Alpine High on Ice: 2020/2021 Breakeven Analysis; Q3'19 Preview
10/21/2019	Truist Securities	E&P: Diversified E&Ps 3Q19 Preview; Operational Efficiencies/Consistency Key
10/21/2019	EVERCORE ISI	Remember the Alamo. E&Ps make a last stand.
10/21/2019	UBS Equities	NorAm E&P Data Refresh "APA, NatGas, Canada Lead Last Week; Tear Sheet ..."
10/22/2019	BofA Global Research	Apache Corp: Suriname deep dive part 2 - addressing a key debate. Is Block 58 oil or gas-
10/25/2019	Stock Traders Daily Research	Comprehensive Technical and Fundamental Analysis for APA. This reports includes The Investment Rate, a macroeconomic leading indicator, and Market Analysis.
10/25/2019	Truist Securities	Resignation not Linked to Upcoming Suriname Well Result
10/25/2019	RBC Capital Markets	Apache Corporation - APA - SVP Resignation Causing Stock Weakness; Company Indicating Not Related to Maka-1 Outcome
10/25/2019	Credit Suisse	APA: Resignation of Exploration Head Highlights Suriname Risk to Share Price
10/28/2019	Wolfe Research	Oil & Gas Exploration & Production - The Weekend Energy Jam: Are Things So Bad They're Really Good?
10/28/2019	Sadif Analytics Prime	Is Apache Corp Worth a Higher Bid?
10/28/2019	MUFG Securities Americas Inc.	Terminating Coverage of Apache Corp.
10/29/2019	Morgan Stanley	Apache Corp.: Catalyst Driven Idea
10/29/2019	Morgan Stanley	Apache Corp.: Suriname...The Next Guyana?
10/29/2019	Wolfe Research	Oil & Gas Exploration & Production - APA: Updating Estimates Before Earnings
10/30/2019	Piper Sandler Companies	Q3'19 Quick Look: A Halloween Mixed Bag: Reese's PB Cups and Bit-O-Honey
10/30/2019	Cowen and Company	3Q19 Quick Take: Slowing Alpine. Waiting On Suriname
10/30/2019	BMO Capital Markets	3Q Oil in Line With Better BOEs, 2020 Capital Indicated Lower
10/30/2019	Truist Securities	3Q19 EBITDA Beat; 2019 Guidance Reiterated; Positive Initial 2020 CAPEX/Production Outlook
10/30/2019	RBC Capital Markets	Apache Corporation - APA - 3Q19 CFPS Beat Consensus; Suriname Well Still Drilling
10/30/2019	ValuEngine, Inc	ValuEngine Rating and Forecast Report for APA
10/31/2019	Morningstar, Inc.	Morningstar Lowering Our Apache Fair Value Estimate to \$23 Because of Lower Commodity Prices
10/31/2019	JPMorgan Econ & FI	Apache Corp : 3Q19: Production Exceeds Guidance Led By US, 2020 Capex Will Be 10-20% Lower, Alpine Guidance Revised Down
10/31/2019	Truist Securities	Coming Down off an Alpine High
10/31/2019	Wolfe Research	Oil and Gas - APA: Suriname Waiting Is Maka-ing Us Crazy
10/31/2019	BofA Global Research	Apache Corp: 3Q19 earnings recap: solid c/flow, starting to pivot from Alpine high. Watch Suriname
10/31/2019	Stephens Inc.	First Look 3Q19 Results: Better-Than-Anticipated EBITDAX, Prod., & Capex
10/31/2019	Credit Suisse	APA: 3Q Beat, but Tempers 4Q Guidance & 2020 Capex; Raising Estimates on Cost Cuts/Shift to Oilier Plays
10/31/2019	EVERCORE ISI	3Q raises questions, importance of Suriname only grows

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
10/31/2019	Barclays	APA: Q3'19 CFPS Beats; 2020 Commentary Better Than Expected
10/31/2019	JPMorgan	Apache Corp : 3Q19 Flash: Solid 3Q19 Results; 2020 Commentary Implies Better Capital Efficiency vs. Street
10/31/2019	UBS Equities	First Read: Apache Corporation "Beat on CF / Capex, Lower 4Q Production ..."
11/1/2019	Wolfe Research	Oil & Gas Exploration & Production - Thoughts Heading Into Earnings Week 2
11/1/2019	Stock Traders Daily Research	Comprehensive Technical and Fundamental Analysis for APA. This reports includes The Investment Rate, a macroeconomic leading indicator, and Market Analysis.
11/1/2019	CFRA Equity Research	Apache Corporation
11/1/2019	Barclays	APA: Post Q3'19 Conference Call Thoughts on 2020; Suriname Commentary
11/1/2019	Credit Suisse	EPS Changes: 4% or Less: 11/1/19
11/4/2019	Wolfe Research	Oil & Gas Exploration & Production - The Weekend Energy Jam – A Few Overlooked Items from Earnings Week 1
11/4/2019	BMO Capital Markets	E&P Model Book - Week 3
11/4/2019	MKM Partners	Rational Alpine High De-Emphasis, Share Price Embeds Meaningful Suriname Value
11/5/2019	CFRA Equity Research	Apache Corporation
11/5/2019	Zacks Equity Research	Apache Corporation(APA) Zacks Company Report
11/7/2019	Argus Research Corporation	Argus Analyst Report, APA
11/7/2019	JPMorgan	Apache Corp : Model Update
11/8/2019	Corporate Watchdog Reports	Watchdog Report: APA - Red Flags and Warning Signs
11/8/2019	Jefferies	Dropping Coverage
11/8/2019	Wolfe Research	Oil & Gas Exploration & Production - The Energy Gauge: October Brings Another Gap Down Before A Rally
11/11/2019	Wolfe Research	Oil & Gas Exploration & Production - The Weekend Energy Jam: Sifting Through the PE-JAG S4, EOG, and OXY's Upcoming Fight
11/12/2019	Morningstar, Inc.	Morningstar Lowering Our Apache Fair Value Estimate to \$23 Because of Lower Commodity Prices. See Updated Analyst Note from 31 Oct 2019
11/12/2019	Acquisdata	Apache Corporation (NYSE- APA)
11/15/2019	BMO Capital Markets	E&P Model Book - Week 3
11/15/2019	Stock Traders Daily Research	Comprehensive Technical and Fundamental Analysis for APA. This reports includes The Investment Rate, a macroeconomic leading indicator, and Market Analysis.
11/18/2019	Wolfe Research	Oil & Gas Exploration & Production - Updating Estimates Post 3Q
11/18/2019	Wolfe Research	Oil & Gas Exploration & Production - The Weekend Energy Jam: COP - The Investment in a Rental Sector
11/20/2019	BuySellSignals Research	Q3 2019: Apache reports deterioration in Loss
11/22/2019	Wright Reports	Wright Investors Service Comprehensive Report for Apache Corporation
11/25/2019	Stock Traders Daily Research	Comprehensive Technical and Fundamental Analysis for APA. This reports includes The Investment Rate, a macroeconomic leading indicator, and Market Analysis.
11/25/2019	EVERCORE ISI	Carving Up the TurDUcken
11/25/2019	Cowen and Company	E&P Sector Update: As You Slow, So Shale You Reap
12/1/2019	Stock Traders Daily Research	Comprehensive Technical and Fundamental Analysis for APA. This reports includes The Investment Rate, a macroeconomic leading indicator, and Market Analysis.
12/2/2019	Morgan Stanley	Apache Corp.: No News is Bad News; Remain UW
12/2/2019	Barclays	Maka Central - 1 Reaction Overblown; Farm-Out Discussions Ongoing
12/2/2019	Wolfe Research	Oil & Gas Exploration & Production - The Weekend Energy Jam: More Tax Loss Selling to Come?

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
12/2/2019	Zacks Equity Research	Apache Corporation(APA) Zacks Company Report
12/2/2019	RBC Capital Markets	Apache Corporation - APA - Suriname Color Following Discussions with APA
12/2/2019	Truist Securities	No News is Not Good News as Operations Resume at Suriname
12/2/2019	RBC Capital Markets	Apache Corporation - APA - Suriname Update Provides Limited Information
12/2/2019	Credit Suisse	APA: Suriname Update - No News Will Likely Be Seen as Bad News
12/3/2019	CFRA Equity Research	Apache Corporation
12/3/2019	GlobalData	Apache Corp (APA) - Financial and Strategic SWOT Analysis Review
12/3/2019	Stephens Inc.	Markets Overly Punitive Reaction to Suriname Update, Creates Buying Opportunity
12/5/2019	Stephens Inc.	Takeaways From Non-Deal Roadshow
12/5/2019	Credit Suisse	APA: Lowering Cash Flow Forecasts and Target Price on Revisions to Our Current Tax Estimates
12/6/2019	Barclays	U.S. Integrated Oil & E&P: Q3'19 Model Updates; Downgrade ECA to EW
12/9/2019	BofA Global Research	Apache Corp: Suriname in focus ... last week's sell-off looks overblown
12/9/2019	Wolfe Research	Oil & Gas Exploration & Production - The Weekend Energy Jam: OPEC Spreads Christmas Cheer + EQT
12/15/2019	Stock Traders Daily Research	Comprehensive Technical and Fundamental Analysis for APA. This reports includes The Investment Rate, a macroeconomic leading indicator, and Market Analysis.
12/16/2019	Wolfe Research	Oil & Gas Exploration & Production - The Weekend Energy Jam: Feedback from the 2020 Outlook + WPX
12/18/2019	UBS Equities	Apache Corporation "Incoming Qs Are All About Risk / Reward" (Sell) Byrne
12/20/2019	BuySellSignals Research	Apache falls for a third consecutive year, a three-year fall of 64%
12/22/2019	RBC Capital Markets	Apache Corporation - Inks 50/50 Suriname JV; JV Financial Value Comes with Success
12/23/2019	BofA Global Research	Apache Corp: Total JV: bringing credibility to one of industry's most sought after offshore plays
12/23/2019	Morningstar, Inc.	Morningstar Lowering Natural Gas Midcycle Forecast to \$2.80/mcf
12/23/2019	Morningstar, Inc.	Morningstar Apache Company Report
12/23/2019	Piper Sandler Companies	"Fo-Sho"-Iname: APA Announces 50/50 JV with Total in Block 58
12/23/2019	Wolfe Research	Oil & Gas Exploration & Production - APA: APA Brings TOT in as Suriname 50% Partner
12/23/2019	Wolfe Research	Oil & Gas Exploration & Production - The Weekend Energy Jam: M&A Rounds out the Year, ECA Catch up, & Permian Gets Back to Work
12/23/2019	RBC Capital Markets	Apache Corporation - APA - Assessing the Value of the TOT Joint Venture
12/23/2019	Cowen and Company	APA Sells Down Suriname Interest to TOT
12/23/2019	Truist Securities	JV Brings Needed Notable Credibility to Suriname Block Though Alpine High Remains Marginal
12/23/2019	Stephens Inc.	First Look: APA and Total S.A. Announce 50-50 JV in Block 58 Offshore Suriname
12/23/2019	Credit Suisse	APA: Enters Suriname JV with Strong Partner to Ease Financing in Case of Exploration Success
12/23/2019	JPMorgan	Apache Corp : Merry "Christmann" Comes A Bit Early: APA Inks Attractive Suriname Farm-Out to Total
12/24/2019	Zacks Equity Research	Apache Corporation(APA) Zacks Company Report
12/24/2019	Streetwise Reports	Apache and Total Form \$5 Billion Joint Venture to Drill off Suriname Coast
12/24/2019	Barclays	APA: Suriname JV Announced with Total; Pre/Post NPV Comparison is Tricky Given Financing Hurdle
12/24/2019	UBS Equities	Apache Corporation "APA/TOT JV; Positive for Sentiment; Modest Price" (Sell)
12/25/2019	Stock Traders Daily Research	Comprehensive Technical and Fundamental Analysis for APA. This reports includes The Investment Rate, a macroeconomic leading indicator, and Market Analysis.
12/30/2019	Wolfe Research	Oil & Gas Exploration & Production - The Weekend Energy Jam: Reflections From 2019
12/31/2019	BuySellSignals Research	Apache increases 0.05% in FY 2019

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
1/2/2020	Vermilion Technical Research	Booster Shots - Charts highlighted: CCL, PII, PVH, BIG, CWH, FLXS, HOFT, RICK, SIG, TXRH, BG, FIZZ, SPTN, USNA, APA, BKR, CXO, EOG, HAL, NOV, PE, SLB, MTDR, ASB, CFR, EWBC, WTCF, CNO, HOMB, HWC, MD, AKBA, CRNX, LMNX, SIEN, LEA, MSM, JELD, STLD, AKS, OEC,
1/6/2020	BofA Global Research	Apache Corp: Suriname JV: ahead of imminent first well result we examine the value of the carry
1/6/2020	Vermilion Technical Research	Vital Signs - Charts of the Day: CABO, CCOI, SKX, WING, DAR, LW, OXY, VAL, DO, RIG, SLB, MTDR, SM, CXO, MUR, WPX, XEC, JAG, TALO, APA, DVN, EOG, ICE, CME, CRVL, RDNT, AVA, NOC, AJRD, LMT, LHX, HII, RTN, ESE, ACLS, and CACI.
1/6/2020	Wolfe Research	Oil & Gas Exploration & Production - The Weekend Energy Jam: Questions for Management
1/7/2020	Piper Sandler Companies	APA Maka(s) A Transformational Oil Discovery Offshore Suriname
1/7/2020	Barclays	APA: Successful Suriname Well Announced; Market Currently Pricing in -3 FPSO Developments
1/7/2020	EVERCORE ISI	Suriname Oil Discovery Confirmed
1/7/2020	JPMorgan	Apache Corp : Suriname Discovery Paints Much Different Path Forward for Stock; Upgrading to Neutral
1/7/2020	BofA Global Research	Apache Corp: Suriname hits: immediately starts to derisk exploration value. Upgrade to Buy PO \$36
1/7/2020	CFRA Equity Research	Apache Corporation
1/7/2020	Cowen and Company	Suriname Oil: Not Maka Believe
1/7/2020	Stephens Inc.	First Look: APA Announces Oil Discovery Offshore Suriname
1/7/2020	Truist Securities	Silencing the Critics with Significant Oil Show at First Suriname Well
1/7/2020	RBC Capital Markets	Apache Corporation - APA - Suriname Oil Discovery a Significant Positive
1/7/2020	UBS Equities	First Read: Apache Corporation "Announces Discovery Offshore Suriname" (Sell)
1/8/2020	Truist Securities	Exploration and Conventional Production Upside Warrant Higher Multiple
1/8/2020	Zacks Equity Research	Apache Corporation(APA) Zacks Company Report
1/8/2020	Morgan Stanley	Apache Corp.: Striking Oil in Suriname
1/9/2020	Barclays	U.S. Integrated Oil & E&P: 2020 Outlook: New Decade, New Approach to Benchmarking Maintenance FCF
1/13/2020	EVERCORE ISI	Cyclicality Cuts Both Ways, For Once
1/13/2020	BMO Capital Markets	Staying the Course; 2020 Outlook/4Q Preview
1/14/2020	Susquehanna Financial Group LLLP	Morning Research Recap - Jan 14 2020 6:22AM
1/14/2020	Susquehanna Financial Group LLLP	Expanding E&P Coverage: Initiate APA, COP, HES, and NBL Positive
1/14/2020	MKM Partners	Select Company Conversations (APA, CDEV, ECA, EOG)
1/16/2020	Cowen and Company	4Q19 Preview: Talkin' Bout Capital Restraint
1/21/2020	Wolfe Research	Oil & Gas Exploration & Production - The Weekend Energy Jam – Nat Gas Hits a Low Point & Everyone Is Impacted
1/21/2020	Truist Securities	E&P: Updated Price Deck Rankings Favor E&Ps with Sustainable Growth & FCF
1/22/2020	JPMorgan	Apache Corp : 4Q19 Preview: Anticipating a Down the Fairway Print; All Eyes Remain on Suriname Exploration Program
1/23/2020	RBC Capital Markets	Apache Corporation - APA - Supplemental Quarterly Information Largely In Line with Expectations
1/23/2020	Scotiabank GBM	Initiating on the Multi-Basin E&Ps - DVN Is Our Favorite E&P
1/24/2020	Wolfe Research	Oil & Gas Exploration & Production - Fighting Through Volatility, U/G DVN & D/G MRO
1/24/2020	Barclays	E&P Q4'19 Preview: It May be Q4'19 Earnings, But It's All About 2020
1/27/2020	RBC Capital Markets	Apache Corporation - Update for Realized Prices and Supplemental Information
1/27/2020	Wolfe Research	Oil & Gas Exploration & Production - The Weekend Energy Jam: Sifting Through the WPX-Felix Proxy
1/27/2020	Sadif Analytics Prime	Is Apache Corp Worth a Higher Bid?
1/29/2020	Morningstar, Inc.	Morningstar What's Suriname Worth to Apache?

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
1/29/2020	Morningstar, Inc.	Morningstar Suriname Discovery Bolsters Apache's International Portfolio
1/30/2020	Plunkett Research, Ltd.	Apache Corporation: Analytics, Extensive Financial Metrics, and Benchmarks Against Averages and Top Companies Within Its Industry
1/31/2020	Wolfe Research	Oil & Gas Exploration & Production - 4Q Preview: It's All Macro For Now
2/3/2020	BMO Capital Markets	U.S. E&P Model Book - Week 1
2/5/2020	BuySellSignals Research	Apache soars 14% in past month
2/6/2020	Zacks Equity Research	Apache Corporation(APA) Zacks Company Report
2/10/2020	Wolfe Research	Oil & Gas Exploration & Production - The Weekend Energy Jam: EQT - Enough Already: We're Buyers
2/10/2020	ValuEngine, Inc	ValuEngine Rating and Forecast Report for APA
2/13/2020	Marktfeld	Apache Corp: Information Content of Earnings Releases 2015-2020
2/18/2020	Wolfe Research	Oil & Gas Exploration & Production - The Weekend Energy Jam: A Look Ahead at This Week's 4Q Reports
2/18/2020	Marktfeld	Apache Corp: Capital Deployment Dashboard
2/19/2020	The Business Research Company	Apache Corporation (Apache) Company Briefing
2/21/2020	Wolfe Research	Oil & Gas Exploration & Production - Natural Gas Research: A Bullish Setup Is Emerging
2/24/2020	Wolfe Research	Oil & Gas Exploration & Production - The Weekend Energy Jam: Are You Not Entertained?
2/26/2020	Truist Securities	4Q19 Beat; Suriname Focus & Waving Goodbye to Alpine High
2/26/2020	Cowen and Company	4Q19 Quick Take
2/26/2020	BMO Capital Markets	4Q19 EBITDAX/Oil Better; Preliminary Suriname Commentary Positive
2/26/2020	Scotiabank GBM	First Glance of 4Q19 Results
2/26/2020	RBC Capital Markets	Apache Corporation - APA - 4Q19 Earnings Beat; 2020 E&P Spending Reduced Considerably
2/26/2020	Morningstar, Inc.	Morningstar Market Overstating Impact of Coronavirus on Energy Stocks
2/26/2020	Scotiabank GBM	Expect EPS/CFPS of \$0.17/\$2.06 vs. Consensus of (\$0.07)/\$1.92
2/26/2020	UBS Equities	First Read: Apache Corporation "4Q Tops; Focus Remains on Suriname" (Sell)
2/27/2020	Truist Securities	Longer Term Conventional Focus Resonating with Investors
2/27/2020	Wolfe Research	Oil & Gas Exploration & Production - APA: Suriname To The Rescue
2/27/2020	EVERCORE ISI	US Onshore challenges persist, Suriname discovery helps offset
2/27/2020	BofA Global Research	Apache Corp: 4Q19 earnings recap: solid quarter turns attention to encouraging Suriname #2 well
2/27/2020	Stephens Inc.	APA Initial Look: EBITDAX Beat, Healthy 1Q20 & '20 Guide
2/27/2020	Barclays	APA: Q4'19 CFPS Beats; 2020 Commentary Better Than Expected
2/27/2020	Credit Suisse	APA: 4Q Beat, Better 2020 Guide & Encouraged by 2nd Suriname Well . . . But Fully Valued Stock
2/27/2020	Piper Sandler Companies	Q4'19 Quick Look: Bye, Bye, Alpine High...We're On to Suriname
2/27/2020	JPMorgan	Apache Corp : 4Q19 Flash: Upside CF, More Capital Efficient 2020 Oil Growth, and Upbeat Suriname Comments; Stock Reaction-Positive
2/28/2020	Morningstar, Inc.	Morningstar Apache Tops Production Guidance, Cuts Back On Gassier Alpine High Play in 2020
2/28/2020	CFRA Equity Research	Apache Corporation
2/28/2020	Susquehanna Financial Group LLLP	4Q Postview: All About Suriname
2/28/2020	Credit Suisse	EPS Changes: 4% or Less: 2/28/2020
2/28/2020	Scotiabank GBM	Highly Encouraging Suriname Body Language
2/28/2020	Wright Reports	Wright Investors Service Comprehensive Report for Apache Corporation
2/28/2020	JPMorgan Econ & FI	Apache Corp : 4Q19: Solid Results, Production Up in 2019, Capex Guide Reduced, Debt Reduction Remains A Priority

Exhibit 5B**Apache Corporation****List of Analyst Reports**

Source: Refinitiv Eikon

Date	Contributor	Title
2/29/2020	CFRA Equity Research	Apache Corporation
2/29/2020	Marktfeld	Apache Corp: Ownership Timelines & Shareholder Analytics (February 2020)
3/2/2020	Wolfe Research	Oil & Gas Exploration & Production - The Weekend Energy Jam: There's a Key Difference Between Oil and Nat Gas Supply
3/2/2020	Zacks Equity Research	Apache Corporation(APA) Zacks Company Report
3/2/2020	JPMorgan	Apache Corp : 4Q19 Post Mortem and Model Update
3/2/2020	MKM Partners	Sensibly Discontinuing Alpine High Capitalization, Share Price Embeds Significant Suriname Value
3/3/2020	RBC Capital Markets	Apache Corporation - Out With the Old & In With the New
3/3/2020	Stephens Inc.	E&P Weekly: Updated Thoughts on APA, CDEV, DNR, MTDR, QEP, & TALO
3/3/2020	CFRA Equity Research	Apache Corporation
3/5/2020	EVERCORE ISI	Valuation Tug of War
3/5/2020	Acquisdata	Apache Corporation (NYSE- APA)
3/6/2020	BuySellSignals Research	FY2019 Annual Report: Apache Revenue down 13.6%
3/8/2020	Truist Securities	Downgrading Nearly Every E&P on Potential Upcoming Energy Armageddon
3/9/2020	Morningstar, Inc.	Morningstar APA Updated Star Rating from 09 Mar 2020
3/9/2020	RBC Capital Markets	Apache Corporation - Model Update Post Call with APA
3/9/2020	Morningstar, Inc.	Morningstar Placing Our U.S. E&P Coverage Under Review
3/9/2020	Wolfe Research	Oil & Gas Exploration & Production - The Weekend Energy Jam: Listening To The Market
3/9/2020	Wolfe Research	Oil & Gas Exploration & Production - Credit Trends & Additional Thoughts on the Selloff
3/9/2020	Morningstar, Inc.	Morningstar What the Russia-Saudi Arabia Impasse Means for Oil Markets
3/9/2020	Wolfe Research	Oil & Gas Exploration & Production - What If E&Ps Paid Out 30% of Cash Flow?
3/10/2020	BMO Capital Markets	U.S. E&P Model Book - Week 4
3/11/2020	Susquehanna Financial Group LLLP	APA, COP, EOG, HES, PXD Conference Calls Key Topics
3/11/2020	Cowen and Company	Reshuffling Ratings: We're Far From the Shale-Low Now
3/12/2020	Stephens Inc.	Mid-Day Research Summary
3/12/2020	Stephens Inc.	First Look: APA Responds to Oil Shock, 35% Capex Reduction + Lowering Dividend
3/12/2020	Cowen and Company	2020 Activity Reduction Greater Than Expected; Dividend Cut by 90%
3/12/2020	Truist Securities	Responding to Severity of Energy Environment with Zero Permian Rigs & 90% Div Cut
3/12/2020	RBC Capital Markets	Apache Corporation - APA - Reducing 2020 Budget by 37% and Cutting its Dividend by 90%
3/12/2020	Credit Suisse	Oil and Gas E&P: The Cuts Keep Coming: APA, DVN, MUR and PDCE Announce Additional Capex Reductions
3/14/2020	BofA Global Research	US Oil and Gas: BofA (Virtual) Energy Bus Tour: Apache Corp. (APA) fireside chat
3/16/2020	Wolfe Research	Oil & Gas Exploration & Production - The Weekend Energy Jam: The Week That Changed Energy Forever
3/16/2020	Susquehanna Financial Group LLLP	Sector Update: Downgrading APA, NBL, OXY to Neutral; Upgrade COG to Positive
3/16/2020	BMO Capital Markets	Shale Heading to Quarantine; Cutting Estimates
3/19/2020	Cowen and Company	Shale-Shocked
3/20/2020	GlobalData	Apache Corp (APA) - Financial and Strategic SWOT Analysis Review

Apache Corporation

Analyst Price Targets and Rating Actions Surrounding Event Dates

Source: Bloomberg

11/3/2016	Third-Quarter 2016 Earnings Results				
Firm	Price Target as of 11/2/2016	Price Target as of 11/8/2016	% Change in Price Target	Pre-Event Rating Action	Post-Event Rating Action
Alembic Global Advisors	\$72.00	\$72.00	0.00%	overweight	overweight
Argus				hold	hold
Atlantic Equities	\$70.00	\$70.00	0.00%	overweight	overweight
Barclays	\$61.00	\$56.00	-8.20%	equalweight	equalweight
Bernstein	\$73.00	\$73.00	0.00%	outperform	outperform
BMO Capital Markets	\$65.00	\$65.00	0.00%	market perform	market perform
Capital One Securities	\$60.00	\$60.00	0.00%	equalweight	equalweight
Citi	\$58.00	\$58.00	0.00%	neutral	neutral
CLSA	\$57.00	\$57.00	0.00%	underperform	underperform
Cowen	\$59.00	\$59.00	0.00%	market perform	market perform
Credit Suisse	\$64.00	\$72.00	12.50%	neutral	neutral
Deutsche Bank	\$62.00	\$62.00	0.00%	hold	hold
Edward Jones				buy	buy
Evercore ISI	\$62.00	\$62.00	0.00%	hold	hold
Goldman Sachs	\$63.00	\$63.00	0.00%	neutral/attractive	neutral/attractive
IBERIA Capital Partners	\$60.00	\$60.00	0.00%	sector perform	sector perform
ISS-EVA				underweight	underweight
Jefferies	\$48.00	\$48.00	0.00%	underperform	underperform
Johnson Rice				accumulate	accumulate
JP Morgan	\$63.00	\$63.00	0.00%	neutral	neutral
KLR Group	\$77.00	\$77.00	0.00%	buy	buy
Macquarie	\$60.00	\$58.00	-3.33%	neutral	neutral
Morgan Stanley	\$70.00	\$70.00	0.00%	Equalwt/Attractive	Equalwt/Attractive
Morningstar				sell	hold
MUFG Securities America	\$64.00	\$64.00	0.00%	neutral	neutral
Nomura	\$42.00	\$42.00	0.00%	reduce	reduce
Peters & Co.	\$50.00	\$50.00	0.00%	sector underperform	sector underperform
Piper Sandler & Co	\$69.00	\$69.00	0.00%	overweight	overweight
Raymond James	\$72.00	\$72.00	0.00%	outperform	outperform
RBC Capital	\$62.00	\$62.00	0.00%	sector perform	sector perform
Scotiabank	\$72.00	\$72.00	0.00%	sector outperform	sector outperform
Seaport Global	\$53.00	\$53.00	0.00%	neutral	neutral
Societe Generale	\$71.00	\$71.00	0.00%	buy	buy
Tudor Pickering & Co	\$74.00	\$74.00	0.00%	hold	hold
Wells Fargo				outperform	outperform
Wolfe Research				peerperform	peerperform
Total	\$63.21	\$63.24	0.05%		

Apache Corporation

Analyst Price Targets and Rating Actions Surrounding Event Dates

Source: Bloomberg

2/23/2017	Fourth-Quarter/Full-Year 2016 Earnings Results				
Firm	Price Target as of 2/22/2017	Price Target as of 2/28/2017	% Change in Price Target	Pre-Event Rating Action	Post-Event Rating Action
Alembic Global Advisors	\$72.00	\$67.00	-6.94%	overweight	overweight
Argus				hold	hold
Atlantic Equities	\$70.00	\$68.00	-2.86%	overweight	overweight
Barclays	\$56.00	\$56.00	0.00%	equalweight	equalweight
Bernstein	\$77.00	\$77.00	0.00%	outperform	outperform
BMO Capital Markets	\$65.00	\$65.00	0.00%	market perform	market perform
Capital One Securities	\$63.00	\$63.00	0.00%	equalweight	equalweight
Citi	\$68.00	\$68.00	0.00%	neutral	neutral
CLSA	\$65.00			underperform	
Cowen	\$65.00	\$65.00	0.00%	market perform	market perform
Credit Suisse	\$77.00	\$77.00	0.00%	neutral	neutral
Deutsche Bank	\$65.00	\$65.00	0.00%	hold	hold
Edward Jones				buy	buy
Evercore ISI	\$67.00	\$67.00	0.00%	hold	hold
Goldman Sachs	\$65.00	\$65.00	0.00%	neutral/attractive	neutral/attractive
IBERIA Capital Partners	\$61.00	\$61.00	0.00%	sector perform	sector perform
ISS-EVA				overweight	overweight
Jefferies	\$54.00	\$54.00	0.00%	underperform	underperform
Johnson Rice				accumulate	accumulate
JP Morgan	\$64.00	\$64.00	0.00%	neutral	neutral
KLR Group	\$79.00	\$79.00	0.00%	buy	buy
Macquarie	\$51.00	\$48.00	-5.88%	underperform	underperform
Morgan Stanley	\$70.00	\$70.00	0.00%	Equalwt/Attractive	Equalwt/Attractive
Morningstar				hold	hold
MUFG Securities America	\$64.00	\$60.00	-6.25%	neutral	neutral
Nomura Instinet	\$50.00	\$50.00	0.00%	reduce	reduce
Peters & Co.	\$55.00	\$55.00	0.00%	sector underperform	sector underperform
Piper Sandler & Co	\$72.00	\$72.00	0.00%	overweight	overweight
Raymond James	\$70.00	\$65.00	-7.14%	outperform	outperform
RBC Capital	\$66.00	\$65.00	-1.52%	sector perform	sector perform
Scotiabank	\$71.00	\$66.00	-7.04%	sector perform	sector perform
Seaport Global	\$60.00	\$60.00	0.00%	neutral	neutral
Societe Generale	\$73.00	\$73.00	0.00%	buy	buy
Tudor Pickering & Co	\$66.00	\$66.00	0.00%	hold	hold
Wells Fargo				market perform	market perform
Wolfe Research				peerperform	peerperform
Total	\$65.55	\$64.68	-1.33%		

Apache Corporation

Analyst Price Targets and Rating Actions Surrounding Event Dates

Source: Bloomberg

5/4/2017	First-Quarter 2017 Earnings Results				
Firm	Price Target as of 5/3/2017	Price Target as of 5/9/2017	% Change in Price Target	Pre-Event Rating Action	Post-Event Rating Action
Alembic Global Advisors	\$67.00	\$63.00	-5.97%	overweight	overweight
Argus				hold	hold
Atlantic Equities	\$68.00	\$68.00	0.00%	overweight	overweight
Barclays	\$41.00	\$41.00	0.00%	underweight	underweight
Bernstein	\$73.00	\$73.00	0.00%	outperform	outperform
BMO Capital Markets	\$53.00	\$53.00	0.00%	market perform	market perform
Capital One Securities	\$62.00	\$61.00	-1.61%	equalweight	equalweight
Citi	\$58.00	\$58.00	0.00%	neutral	neutral
Cowen	\$50.00	\$50.00	0.00%	market perform	market perform
Credit Suisse	\$70.00	\$70.00	0.00%	neutral	neutral
Deutsche Bank	\$65.00	\$65.00	0.00%	hold	hold
Edward Jones				buy	buy
Evercore ISI	\$67.00	\$67.00	0.00%	in-line	in-line
Goldman Sachs	\$68.00	\$68.00	0.00%	neutral/attractive	neutral/attractive
IBERIA Capital Partners	\$61.00	\$61.00	0.00%	sector perform	sector perform
ISS-EVA				overweight	overweight
Jefferies	\$44.00	\$44.00	0.00%	underperform	underperform
Johnson Rice				accumulate	accumulate
JP Morgan	\$64.00	\$64.00	0.00%	neutral	neutral
KLR Group	\$66.00	\$66.00	0.00%	buy	buy
Macquarie	\$47.00	\$47.00	0.00%	underperform	underperform
Morgan Stanley	\$58.00	\$58.00	0.00%	Equalwt/Attractive	Equalwt/Attractive
MUFG Securities America	\$60.00	\$60.00	0.00%	neutral	neutral
Nomura Instinet	\$50.00	\$50.00	0.00%	reduce	reduce
Peters & Co.	\$50.00	\$50.00	0.00%	sector underperform	sector underperform
Piper Sandler & Co	\$68.00	\$68.00	0.00%	overweight	overweight
Raymond James	\$60.00	\$60.00	0.00%	outperform	outperform
RBC Capital	\$63.00	\$63.00	0.00%	sector perform	sector perform
Scotiabank	\$58.00	\$58.00	0.00%	sector perform	sector perform
Seaport Global	\$52.00	\$52.00	0.00%	neutral	neutral
Societe Generale	\$73.00	\$73.00	0.00%	buy	buy
Stifel	\$58.00	\$57.00	-1.72%	hold	hold
Tudor Pickering & Co	\$75.00	\$75.00	0.00%	hold	hold
Wells Fargo		\$55.00		market perform	market perform
Wolfe Research	\$50.00	\$50.00	0.00%	peerperform	peerperform
Total	\$59.97	\$59.61	-0.59%		

Apache Corporation

Analyst Price Targets and Rating Actions Surrounding Event Dates

Source: Bloomberg

8/3/2017	Second-Quarter 2017 Earnings Results				
Firm	Price Target as of 8/2/2017	Price Target as of 8/8/2017	% Change in Price Target	Pre-Event Rating Action	Post-Event Rating Action
Alembic Global Advisors	\$63.00	\$55.00	-12.70%	overweight	overweight
Argus				hold	hold
Atlantic Equities	\$58.00	\$58.00	0.00%	overweight	overweight
Barclays	\$30.00	\$30.00	0.00%	underweight	underweight
Bernstein	\$59.00	\$59.00	0.00%	outperform	outperform
BMO Capital Markets	\$45.00	\$45.00	0.00%	market perform	market perform
Capital One Securities	\$49.00	\$49.00	0.00%	equalweight	equalweight
Citi	\$50.00	\$50.00	0.00%	neutral	neutral
Cowen	\$50.00	\$50.00	0.00%	market perform	market perform
Deutsche Bank	\$49.00	\$49.00	0.00%	hold	hold
Edward Jones				buy	buy
Evercore ISI	\$52.00	\$52.00	0.00%	in-line	in-line
Goldman Sachs	\$49.50	\$49.50	0.00%	neutral/attractive	neutral/attractive
IBERIA Capital Partners	\$61.00	\$61.00	0.00%	sector perform	sector perform
ISS-EVA				hold	hold
Jefferies	\$40.00	\$40.00	0.00%	underperform	underperform
Johnson Rice				accumulate	accumulate
JP Morgan	\$50.00	\$50.00	0.00%	neutral	neutral
KLR Group	\$67.00	\$65.00	-2.99%	buy	buy
Macquarie	\$40.00	\$39.00	-2.50%	underperform	underperform
Morgan Stanley	\$45.00	\$45.00	0.00%	Equalwt/Attractive	Equalwt/Attractive
MUFG Securities America	\$56.00	\$56.00	0.00%	neutral	neutral
Nomura Instinet	\$50.00	\$50.00	0.00%	reduce	reduce
Peters & Co.				Under Review	Under Review
Piper Sandler & Co	\$68.00	\$68.00	0.00%	overweight	overweight
Raymond James	\$56.00	\$56.00	0.00%	outperform	outperform
RBC Capital	\$55.00	\$55.00	0.00%	sector perform	sector perform
Scotiabank	\$50.00	\$50.00	0.00%	sector perform	sector perform
Seaport Global	\$36.00	\$36.00	0.00%	sell	sell
Societe Generale	\$55.00	\$55.00	0.00%	buy	buy
Stifel	\$46.00	\$46.00	0.00%	hold	hold
Tudor Pickering & Co	\$92.00	\$92.00	0.00%	hold	hold
Wells Fargo	\$47.50	\$47.50	0.00%	market perform	market perform
Wolfe Research	\$40.00	\$40.00	0.00%	underperform	underperform
Total	\$52.03	\$51.66	-0.73%		

Apache Corporation

Analyst Price Targets and Rating Actions Surrounding Event Dates

Source: Bloomberg

11/2/2017	Third-Quarter 2017 Earnings Results				
Firm	Price Target as of 11/1/2017	Price Target as of 11/7/2017	% Change in Price Target	Pre-Event Rating Action	Post-Event Rating Action
Alembic Global Advisors	\$57.00	\$56.00	-1.75%	overweight	overweight
Argus				hold	hold
Atlantic Equities	\$58.00	\$58.00	0.00%	overweight	overweight
Barclays	\$26.00	\$26.00	0.00%	underweight	underweight
Bernstein	\$51.00	\$51.00	0.00%	outperform	outperform
BMO Capital Markets	\$45.00	\$42.00	-6.67%	market perform	market perform
Capital One Securities	\$51.00	\$51.00	0.00%	equalweight	equalweight
Citi	\$45.00	\$45.00	0.00%	neutral	neutral
Cowen	\$50.00	\$50.00	0.00%	market perform	market perform
Deutsche Bank	\$49.00	\$45.00	-8.16%	hold	hold
Edward Jones				buy	buy
Evercore ISI	\$52.00	\$52.00	0.00%	in-line	in-line
Goldman Sachs	\$46.75	\$46.75	0.00%	neutral/attractive	neutral/attractive
IBERIA Capital Partners	\$61.00	\$61.00	0.00%	sector perform	sector perform
Jefferies	\$38.00	\$38.00	0.00%	underperform	underperform
Johnson Rice				accumulate	accumulate
JP Morgan	\$38.00	\$39.00	2.63%	underweight	underweight
KLR Group	\$66.00	\$66.00	0.00%	buy	buy
Macquarie	\$33.00	\$33.00	0.00%	underperform	underperform
Morgan Stanley	\$46.00	\$46.00	0.00%	Equalwt/Attractive	Equalwt/Attractive
MUFG Securities America	\$56.00	\$56.00	0.00%	neutral	neutral
Peters & Co.	\$40.00	\$40.00	0.00%	sector underperform	sector underperform
Piper Sandler & Co	\$68.00	\$68.00	0.00%	overweight	overweight
Raymond James	\$50.00	\$50.00	0.00%	outperform	outperform
RBC Capital	\$55.00	\$55.00	0.00%	sector perform	sector perform
Scotiabank	\$49.00	\$49.00	0.00%	sector perform	sector perform
Seaport Global	\$36.00	\$36.00	0.00%	sell	sell
Societe Generale	\$55.00	\$55.00	0.00%	buy	buy
Stifel	\$46.00	\$46.00	0.00%	hold	hold
Tudor Pickering & Co	\$47.00	\$47.00	0.00%	hold	hold
Wolfe Research	\$40.00	\$40.00	0.00%	underperform	underperform
Total	\$48.38	\$48.13	-0.52%		

Apache Corporation

Analyst Price Targets and Rating Actions Surrounding Event Dates

Source: Bloomberg

2/22/2018	Fourth-Quarter/Full-Year 2017 Earnings Results				
Firm	Price Target as of 2/21/2018	Price Target as of 2/27/2018	% Change in Price Target	Pre-Event Rating Action	Post-Event Rating Action
Alembic Global Advisors	\$66.00	\$66.00	0.00%	overweight	overweight
Argus				hold	hold
Atlantic Equities	\$58.00	\$58.00	0.00%	overweight	overweight
Bernstein	\$54.00	\$45.00	-16.67%	outperform	outperform
BMO Capital Markets	\$45.00	\$35.00	-22.22%	market perform	market perform
Capital One Securities	\$50.00	\$50.00	0.00%	equalweight	equalweight
Citi	\$46.00	\$40.00	-13.04%	neutral	neutral
Cowen	\$50.00	\$50.00	0.00%	market perform	market perform
Credit Suisse	\$43.00	\$39.00	-9.30%	neutral	neutral
Deutsche Bank	\$52.00	\$52.00	0.00%	hold	hold
Edward Jones				buy	buy
Evercore ISI	\$55.00	\$55.00	0.00%	in-line	in-line
Goldman Sachs	\$58.00	\$58.00	0.00%	neutral/attractive	neutral/attractive
ISS-EVA				overweight	overweight
Jefferies	\$40.00	\$40.00	0.00%	underperform	underperform
Johnson Rice				accumulate	accumulate
JP Morgan	\$39.00	\$39.00	0.00%	underweight	underweight
KLR Group	\$65.00	\$64.00	-1.54%	buy	buy
Macquarie	\$34.00	\$29.00	-14.71%	underperform	underperform
MUFG Securities America	\$56.00	\$46.00	-17.86%	neutral	overweight
National Alliance Capital Markets	\$44.00	\$38.00	-13.64%	hold	hold
Peters & Co.	\$40.00	\$35.00	-12.50%	sector underperform	sector underperform
Piper Sandler & Co	\$68.00	\$68.00	0.00%	overweight	overweight
Raymond James	\$55.00	\$55.00	0.00%	outperform	outperform
RBC Capital	\$51.00	\$51.00	0.00%	sector perform	sector perform
Scotiabank	\$55.00	\$55.00	0.00%	sector perform	sector perform
Seaport Global				sell	sell
Societe Generale	\$53.00	\$53.00	0.00%	buy	buy
Stifel	\$41.00	\$39.00	-4.88%	hold	hold
Tudor Pickering & Co	\$59.00	\$59.00	0.00%	hold	hold
Wolfe Research	\$40.00	\$40.00	0.00%	underperform	underperform
Total	\$50.65	\$48.42	-4.40%		

Apache Corporation

Analyst Price Targets and Rating Actions Surrounding Event Dates

Source: Bloomberg

5/2/2018	First-Quarter 2018 Earnings Results				
Firm	Price Target as of 5/1/2018	Price Target as of 5/7/2018	% Change in Price Target	Pre-Event Rating Action	Post-Event Rating Action
Alembic Global Advisors	\$50.00	\$50.00	0.00%	overweight	overweight
Argus				hold	hold
Atlantic Equities	\$58.00	\$58.00	0.00%	overweight	overweight
Bernstein	\$43.00	\$43.00	0.00%	outperform	outperform
BMO Capital Markets	\$35.00	\$35.00	0.00%	market perform	market perform
Capital One Securities	\$46.00	\$46.00	0.00%	equalweight	equalweight
Citi	\$40.00	\$40.00	0.00%	neutral	neutral
Cowen	\$50.00	\$50.00	0.00%	market perform	market perform
Credit Suisse	\$40.00	\$40.00	0.00%	neutral	neutral
Deutsche Bank	\$52.00	\$52.00	0.00%	hold	hold
Edward Jones				buy	buy
Evercore ISI	\$50.00	\$50.00	0.00%	in-line	in-line
Goldman Sachs	\$42.75	\$42.75	0.00%	neutral/attractive	neutral/attractive
ISS-EVA				overweight	overweight
Jefferies	\$32.00	\$32.00	0.00%	underperform	underperform
Johnson Rice	\$44.00	\$44.00	0.00%	accumulate	accumulate
JP Morgan	\$39.00	\$39.00	0.00%	underweight	underweight
KLR Group	\$62.00	\$62.00	0.00%	buy	buy
Macquarie	\$29.00	\$31.00	6.90%	underperform	underperform
MUFG Securities America	\$49.00	\$49.00	0.00%	overweight	overweight
National Alliance Capital Markets	\$38.00	\$42.00	10.53%	hold	hold
Peters & Co.	\$35.00	\$35.00	0.00%	sector underperform	sector underperform
Piper Sandler & Co	\$68.00	\$68.00	0.00%	overweight	overweight
Raymond James	\$57.00	\$57.00	0.00%	outperform	outperform
RBC Capital	\$48.00	\$48.00	0.00%	sector perform	sector perform
Scotiabank	\$53.00	\$53.00	0.00%	sector perform	sector perform
Seaport Global				sell	sell
Societe Generale	\$53.00	\$53.00	0.00%	buy	buy
Stifel	\$48.00	\$47.00	-2.08%	hold	hold
Tudor Pickering & Co	\$49.00	\$49.00	0.00%	hold	hold
Wolfe Research	\$40.00	\$40.00	0.00%	underperform	underperform
Total	\$46.32	\$46.51	0.40%		

Apache Corporation

Analyst Price Targets and Rating Actions Surrounding Event Dates

Source: Bloomberg

8/1/2018	Second-Quarter 2018 Earnings Results				
Firm	Price Target as of 7/31/2018	Price Target as of 8/6/2018	% Change in Price Target	Pre-Event Rating Action	Post-Event Rating Action
Alembic Global Advisors	\$50.00	\$50.00	0.00%	overweight	overweight
Argus	\$56.00	\$56.00	0.00%	buy	buy
Atlantic Equities	\$58.00	\$58.00	0.00%	overweight	overweight
Bernstein	\$49.00	\$49.00	0.00%	outperform	outperform
BMO Capital Markets	\$39.00	\$39.00	0.00%	market perform	market perform
Capital One Securities	\$48.00	\$48.00	0.00%	equalweight	equalweight
Citi	\$44.00	\$44.00	0.00%	neutral	neutral
Cowen	\$48.00	\$48.00	0.00%	market perform	market perform
Credit Suisse	\$46.00	\$46.00	0.00%	neutral	neutral
Edward Jones				buy	buy
Evercore ISI	\$50.00	\$50.00	0.00%	in-line	in-line
Goldman Sachs	\$44.00	\$44.00	0.00%	neutral/attractive	neutral/attractive
ISS-EVA				overweight	overweight
Jefferies	\$36.00	\$36.00	0.00%	underperform	underperform
Johnson Rice	\$57.50	\$57.50	0.00%	accumulate	accumulate
JP Morgan	\$40.00	\$40.00	0.00%	underweight	underweight
KLR Group	\$54.00	\$54.00	0.00%	buy	buy
Macquarie	\$39.00	\$39.00	0.00%	underperform	underperform
Mizuho Securities	\$55.00	\$55.00	0.00%	neutral	neutral
Morgan Stanley	\$42.00	\$42.00	0.00%	Underwt/Attractive	Underwt/Attractive
MUFG Securities America	\$60.00	\$60.00	0.00%	overweight	overweight
National Alliance Capital Markets	\$46.00	\$46.00	0.00%	hold	hold
Peters & Co.	\$40.00	\$40.00	0.00%	sector underperform	sector underperform
Piper Sandler & Co	\$68.00	\$68.00	0.00%	overweight	overweight
Raymond James	\$57.00	\$60.00	5.26%	outperform	outperform
RBC Capital	\$52.00	\$52.00	0.00%	sector perform	sector perform
Scotiabank	\$48.00	\$48.00	0.00%	sector perform	sector perform
Seaport Global				sell	sell
Societe Generale	\$53.00	\$53.00	0.00%	buy	buy
Stifel	\$45.00	\$46.00	2.22%	hold	hold
Tudor Pickering & Co	\$64.00	\$64.00	0.00%	hold	hold
Wolfe Research	\$40.00	\$41.00	2.50%	underperform	underperform
Total	\$49.26	\$49.43	0.35%		

Apache Corporation

Analyst Price Targets and Rating Actions Surrounding Event Dates

Source: Bloomberg

10/31/2018	Third-Quarter 2018 Earnings Results				
Firm	Price Target as of 10/30/2018	Price Target as of 11/5/2018	% Change in Price Target	Pre-Event Rating Action	Post-Event Rating Action
Argus	\$56.00	\$56.00	0.00%	buy	buy
Atlantic Equities	\$58.00	\$58.00	0.00%	overweight	overweight
Bernstein	\$49.00	\$49.00	0.00%	outperform	outperform
BMO Capital Markets	\$45.00	\$45.00	0.00%	market perform	market perform
Capital One Securities	\$50.00	\$50.00	0.00%	equalweight	equalweight
Citi				withheld	withheld
Credit Suisse	\$46.00	\$46.00	0.00%	neutral	neutral
Edward Jones				hold	hold
Evercore ISI	\$54.00	\$54.00	0.00%	in-line	in-line
Goldman Sachs	\$44.50	\$44.50	0.00%	neutral/attractive	neutral/attractive
ISS-EVA				overweight	overweight
Jefferies	\$39.00	\$39.00	0.00%	underperform	underperform
Johnson Rice	\$65.00	\$65.00	0.00%	accumulate	accumulate
JP Morgan	\$42.00	\$42.00	0.00%	underweight	underweight
Macquarie	\$39.00	\$37.00	-5.13%	underperform	neutral
Mizuho Securities	\$47.00	\$47.00	0.00%	neutral	neutral
Morgan Stanley	\$43.00	\$43.00	0.00%	Underwt/Attractive	Underwt/Attractive
MUFG Securities America	\$64.00	\$64.00	0.00%	overweight	overweight
National Alliance Capital Markets	\$47.00	\$41.00	-12.77%	hold	hold
Peters & Co.	\$40.00	\$40.00	0.00%	sector underperform	sector underperform
Piper Sandler & Co	\$66.00	\$66.00	0.00%	neutral	neutral
Raymond James	\$65.00	\$65.00	0.00%	outperform	outperform
RBC Capital	\$54.00	\$54.00	0.00%	sector perform	sector perform
Scotiabank	\$55.00	\$55.00	0.00%	sector perform	sector perform
Seaport Global	\$39.00	\$39.00	0.00%	sell	sell
Societe Generale	\$53.00	\$53.00	0.00%	buy	buy
Stephens	\$55.00	\$52.00	-5.45%	overweight	overweight
Stifel	\$50.00	\$53.00	6.00%	hold	hold
Tudor Pickering & Co				restricted	restricted
Wolfe Research	\$42.00	\$42.00	0.00%	underperform	underperform
Total	\$50.29	\$49.98	-0.61%		

Apache Corporation

Analyst Price Targets and Rating Actions Surrounding Event Dates

Source: Bloomberg

2/27/2019	Fourth-Quarter/Full-Year 2018 Earnings Results				
Firm	Price Target as of 2/26/2019	Price Target as of 3/4/2019	% Change in Price Target	Pre-Event Rating Action	Post-Event Rating Action
Argus	\$56.00	\$42.00	-25.00%	buy	buy
Atlantic Equities	\$45.00	\$45.00	0.00%	overweight	overweight
Barclays	\$29.00	\$29.00	0.00%	underweight	underweight
Bernstein	\$43.00	\$43.00	0.00%	outperform	outperform
BMO Capital Markets	\$29.00	\$30.00	3.45%	market perform	market perform
Capital One Securities	\$23.00	\$23.00	0.00%	equalweight	equalweight
Citi	\$31.00	\$31.00	0.00%	neutral	neutral
Cowen	\$35.00	\$35.00	0.00%	market perform	market perform
Credit Suisse	\$36.00	\$37.00	2.78%	neutral	neutral
Edward Jones				hold	hold
Evercore ISI	\$42.00	\$42.00	0.00%	in-line	in-line
Goldman Sachs	\$39.00	\$39.00	0.00%	neutral/attractive	neutral/attractive
ISS-EVA				hold	hold
Jefferies	\$26.00	\$26.00	0.00%	underperform	underperform
Johnson Rice	\$40.00	\$40.00	0.00%	accumulate	accumulate
JP Morgan	\$35.00	\$35.00	0.00%	underweight	underweight
Macquarie	\$29.00	\$29.00	0.00%	neutral	neutral
Mizuho Securities	\$35.00	\$35.00	0.00%	neutral	neutral
Morgan Stanley	\$27.00	\$27.00	0.00%	Underwt/Attractive	Underwt/Attractive
MUFG Securities America	\$47.00	\$47.00	0.00%	overweight	overweight
Peters & Co.	\$30.00	\$30.00	0.00%	sector underperform	sector underperform
Piper Sandler & Co	\$35.00	\$35.00	0.00%	neutral	neutral
Raymond James	\$44.00	\$44.00	0.00%	outperform	outperform
RBC Capital	\$39.00	\$39.00	0.00%	sector perform	sector perform
Scotiabank	\$48.00	\$48.00	0.00%	sector perform	sector perform
Seaport Global				neutral	neutral
Societe Generale	\$34.00	\$34.00	0.00%	buy	buy
Stephens	\$45.00	\$45.00	0.00%	overweight	overweight
Stifel	\$39.00	\$36.00	-7.69%	hold	hold
Tudor Pickering & Co	\$48.00	\$48.00	0.00%	hold	hold
Wolfe Research	\$32.00	\$32.00	0.00%	underperform	underperform
Zacks				hold	hold
Total	\$37.18	\$36.64	-1.44%		

Apache Corporation

Analyst Price Targets and Rating Actions Surrounding Event Dates

Source: Bloomberg

5/1/2019	First-Quarter 2019 Earnings Results				
Firm	Price Target as of 4/30/2019	Price Target as of 5/6/2019	% Change in Price Target	Pre-Event Rating Action	Post-Event Rating Action
Argus	\$42.00	\$42.00	0.00%	buy	buy
Atlantic Equities	\$45.00	\$45.00	0.00%	overweight	overweight
Barclays	\$30.00	\$30.00	0.00%	underweight	underweight
Bernstein	\$43.00	\$40.00	-6.98%	outperform	outperform
BMO Capital Markets	\$36.00	\$33.00	-8.33%	market perform	market perform
Capital One Securities	\$29.00	\$29.00	0.00%	equalweight	equalweight
Citi	\$35.00	\$35.00	0.00%	neutral	neutral
Cowen	\$36.00	\$36.00	0.00%	market perform	market perform
Credit Suisse	\$37.00	\$33.00	-10.81%	neutral	neutral
Edward Jones				hold	hold
Evercore ISI	\$40.00	\$40.00	0.00%	in-line	in-line
Goldman Sachs	\$36.50	\$36.50	0.00%	neutral	neutral
ISS-EVA				sell	sell
Jefferies	\$27.00	\$27.00	0.00%	underperform	underperform
Johnson Rice	\$40.00	\$40.00	0.00%	accumulate	accumulate
JP Morgan	\$35.00	\$35.00	0.00%	underweight	underweight
Macquarie	\$32.00	\$31.00	-3.13%	neutral	neutral
Mizuho Securities	\$32.00	\$32.00	0.00%	neutral	neutral
Morgan Stanley	\$25.00	\$25.00	0.00%	Underwt/Attractive	Underwt/Attractive
MUFG Securities America	\$45.00	\$45.00	0.00%	overweight	overweight
Peters & Co.	\$30.00	\$30.00	0.00%	sector underperform	sector underperform
Piper Sandler & Co	\$37.00	\$37.00	0.00%	neutral	neutral
Raymond James	\$46.00	\$46.00	0.00%	outperform	outperform
RBC Capital	\$41.00	\$41.00	0.00%	sector perform	sector perform
Scotiabank	\$40.00	\$40.00	0.00%	sector perform	sector perform
Seaport Global				neutral	neutral
Stephens	\$46.00	\$46.00	0.00%	overweight	overweight
Stifel	\$38.00	\$38.00	0.00%	hold	hold
Tudor Pickering & Co	\$39.00	\$39.00	0.00%	hold	hold
Wolfe Research	\$32.00	\$32.00	0.00%	underperform	underperform
Zacks				hold	hold
Total	\$36.83	\$36.43	-1.11%		

Apache Corporation

Analyst Price Targets and Rating Actions Surrounding Event Dates

Source: Bloomberg

7/31/2019	Second-Quarter 2019 Earnings Results				
Firm	Price Target as of 7/30/2019	Price Target as of 8/5/2019	% Change in Price Target	Pre-Event Rating Action	Post-Event Rating Action
Argus	\$42.00	\$42.00	0.00%	buy	buy
Atlantic Equities	\$45.00	\$45.00	0.00%	overweight	overweight
Barclays	\$30.00	\$30.00	0.00%	underweight	underweight
Bernstein	\$40.00	\$40.00	0.00%	outperform	outperform
BMO Capital Markets	\$27.00	\$26.00	-3.70%	market perform	market perform
Capital One Securities	\$29.00	\$27.00	-6.90%	equalweight	equalweight
Citi	\$35.00	\$35.00	0.00%	neutral	neutral
Cowen	\$30.00	\$30.00	0.00%	market perform	market perform
Credit Suisse	\$25.00	\$25.00	0.00%	neutral	neutral
Edward Jones				hold	hold
Evercore ISI	\$40.00	\$40.00	0.00%	in-line	in-line
Goldman Sachs	\$27.00	\$27.00	0.00%	neutral	neutral
ISS-EVA				underweight	sell
Jefferies	\$19.00	\$19.00	0.00%	underperform	underperform
Johnson Rice	\$37.50	\$37.50	0.00%	accumulate	accumulate
JP Morgan	\$33.00	\$33.00	0.00%	underweight	underweight
Macquarie	\$27.00	\$25.00	-7.41%	neutral	neutral
Mizuho Securities	\$28.00	\$28.00	0.00%	neutral	neutral
Morgan Stanley	\$18.00	\$17.00	-5.56%	Underwt/Attractive	Underwt/Attractive
Morningstar	\$27.00	\$25.00	-7.41%	hold	hold
MUFG Securities America	\$39.00	\$39.00	0.00%	overweight	overweight
Peters & Co.	\$28.00	\$22.00	-21.43%	sector underperform	sector underperform
Piper Sandler & Co	\$31.00	\$31.00	0.00%	neutral	neutral
Raymond James	\$32.00	\$32.00	0.00%	outperform	outperform
RBC Capital	\$36.00	\$35.00	-2.78%	sector perform	sector perform
Seaport Global				neutral	neutral
Stephens	\$38.00	\$38.00	0.00%	overweight	overweight
Stifel	\$26.00	\$26.00	0.00%	hold	hold
Tudor Pickering & Co	\$31.00	\$25.00	-19.35%	hold	hold
Wells Fargo				suspended coverage	suspended coverage
Wolfe Research	\$32.00	\$32.00	0.00%	peerperform	peerperform
Zacks				hold	hold
Total	\$31.57	\$30.80	-2.46%		

Apache Corporation

Analyst Price Targets and Rating Actions Surrounding Event Dates

Source: Bloomberg

10/30/2019	Third-Quarter 2019 Earnings Results				
Firm	Price Target as of 10/29/2019	Price Target as of 11/4/2019	% Change in Price Target	Pre-Event Rating Action	Post-Event Rating Action
Argus	\$29.00	\$29.00	0.00%	buy	buy
Atlantic Equities	\$45.00	\$45.00	0.00%	overweight	overweight
Barclays	\$28.00	\$28.00	0.00%	underweight	underweight
Bernstein	\$30.00	\$30.00	0.00%	outperform	outperform
BMO Capital Markets	\$18.00	\$18.00	0.00%	market perform	market perform
Capital One Securities	\$21.00	\$21.00	0.00%	equalweight	equalweight
Citi	\$27.00	\$27.00	0.00%	neutral	neutral
Cowen	\$22.00	\$22.00	0.00%	market perform	market perform
Credit Suisse	\$20.00	\$20.00	0.00%	neutral	neutral
Edward Jones				sell	sell
Evercore ISI	\$28.00	\$26.00	-7.14%	in-line	in-line
Goldman Sachs	\$23.50	\$23.50	0.00%	neutral	neutral
ISS-EVA				sell	sell
Johnson Rice	\$25.00	\$25.00	0.00%	accumulate	accumulate
JP Morgan	\$27.00	\$27.00	0.00%	underweight	underweight
KeyBanc Capital Markets				sector weight	sector weight
Macquarie	\$22.00	\$22.00	0.00%	neutral	neutral
Mizuho Securities	\$27.00	\$27.00	0.00%	neutral	neutral
MKM Partners	\$25.00	\$27.00	8.00%	neutral	neutral
Morgan Stanley	\$15.00	\$18.00	20.00%	Underwt/Attractive	Underwt/Attractive
Morningstar	\$25.00	\$23.00	-8.00%	hold	hold
Peters & Co.	\$22.00	\$22.00	0.00%	sector underperform	sector underperform
Piper Sandler & Co	\$28.00	\$27.00	-3.57%	neutral	neutral
Raymond James	\$25.00	\$26.00	4.00%	outperform	outperform
RBC Capital	\$30.00	\$30.00	0.00%	sector perform	sector perform
Seaport Global				neutral	neutral
Stephens	\$32.00	\$32.00	0.00%	overweight	overweight
Stifel	\$22.00	\$21.00	-4.55%	hold	hold
Truist Securities	\$32.00	\$32.00	0.00%	buy	buy
Tudor Pickering & Co	\$22.00	\$22.00	0.00%	hold	hold
Wells Fargo				suspended coverage	suspended coverage
Wolfe Research	\$25.00	\$25.00	0.00%	peerperform	peerperform
Zacks				hold	hold
Total	\$25.76	\$25.76	0.00%		

Apache Corporation

Analyst Price Targets and Rating Actions Surrounding Event Dates

Source: Bloomberg

2/26/2020	Fourth-Quarter/Full-Year 2019 Earnings Results				
Firm	Price Target as of 2/25/2020	Price Target as of 3/2/2020	% Change in Price Target	Pre-Event Rating Action	Post-Event Rating Action
Argus				hold	hold
Atlantic Equities	\$36.00	\$36.00	0.00%	overweight	overweight
Barclays	\$34.00	\$34.00	0.00%	equalweight	equalweight
Bernstein	\$30.00	\$30.00	0.00%	outperform	outperform
BMO Capital Markets	\$25.00	\$25.00	0.00%	market perform	market perform
Capital One Securities	\$24.00	\$27.00	12.50%	equalweight	equalweight
Citi	\$33.00	\$33.00	0.00%	neutral	neutral
Cowen	\$30.00	\$30.00	0.00%	market perform	market perform
Credit Suisse	\$20.00	\$20.00	0.00%	neutral	neutral
Evercore ISI	\$29.00	\$29.00	0.00%	in-line	in-line
Goldman Sachs	\$33.50	\$33.00	-1.49%	neutral	neutral
ISS-EVA				sell	sell
Johnson Rice	\$29.00	\$29.00	0.00%	accumulate	accumulate
JP Morgan	\$30.00	\$28.00	-6.67%	neutral	neutral
KeyBanc Capital Markets	\$33.00	\$33.00	0.00%	overweight	overweight
Mizuho Securities	\$34.00	\$34.00	0.00%	neutral	neutral
MKM Partners	\$28.00	\$31.00	10.71%	neutral	neutral
Morgan Stanley	\$31.00	\$31.00	0.00%	Equalwt/In-Line	Equalwt/In-Line
Morningstar	\$29.00	\$29.00	0.00%	hold	hold
Peters & Co.	\$22.00	\$25.00	13.64%	sector underperform	sector underperform
Piper Sandler & Co	\$34.00	\$34.00	0.00%	neutral	neutral
Raymond James	\$39.00	\$39.00	0.00%	outperform	outperform
RBC Capital	\$35.00	\$35.00	0.00%	sector perform	sector perform
Stephens	\$37.00	\$37.00	0.00%	overweight	overweight
Stifel	\$39.00	\$40.00	2.56%	buy	buy
Susquehanna	\$38.00	\$35.00	-7.89%	Positive	Positive
Truist Securities	\$38.00	\$38.00	0.00%	buy	buy
Tudor Pickering & Co	\$22.00	\$22.00	0.00%	hold	hold
Wells Fargo				suspended coverage	suspended coverage
Wolfe Research	\$26.00	\$22.00	-15.38%	peerperform	peerperform
Zacks	\$24.00	\$24.00	0.00%	neutral	neutral
Total	\$30.80	\$30.82	0.06%		

Exhibit 6**Apache Corporation****List of SEC Filings**Source: Edgar Pro (<http://pro.edgar-online.com/>)

Count	Form Type	Company (Filer)	Received	Period
1	4	APACHE CORP(SULLIVAN TIMOTHY J)	8/23/2016	8/22/2016
2	4	APACHE CORP(OLSON W KREGG)	8/23/2016	8/22/2016
3	4	APACHE CORP(HOYT REBECCA A)	8/23/2016	8/22/2016
4	4	APACHE CORP(HOUSE JAMES L)	8/23/2016	8/22/2016
5	4	APACHE CORP(CHRISTMANN JOHN J)	8/23/2016	8/22/2016
6	4	APACHE CORP(RAGAUSS PETER A)	8/23/2016	8/22/2016
7	4	APACHE CORP(RABUN DANIEL WAYNE)	8/23/2016	8/22/2016
8	4	APACHE CORP(PITMAN CHARLES J)	8/23/2016	8/22/2016
9	4	APACHE CORP(PATTON RODMAN D)	8/23/2016	8/22/2016
10	4	APACHE CORP(NELSON AMY H)	8/23/2016	8/22/2016
11	4	APACHE CORP(MONTGOMERY WILLIAM C)	8/23/2016	8/22/2016
12	4	APACHE CORP(LOWE JOHN E)	8/23/2016	8/22/2016
13	4	APACHE CORP(LAWRENCE GEORGE D)	8/23/2016	8/22/2016
14	4	APACHE CORP(JOUNG CHANSOO)	8/23/2016	8/22/2016
15	4	APACHE CORP(BAY ANNELL R)	8/23/2016	8/22/2016
16	4	APACHE CORP(SULLIVAN TIMOTHY J)	9/12/2016	9/9/2016
17	4	APACHE CORP(OLSON W KREGG)	9/12/2016	9/9/2016
18	4	APACHE CORP(ABLES GRADY L)	9/12/2016	9/9/2016
19	4	APACHE CORP(LANNIE P ANTHONY)	9/15/2016	9/15/2016
20	4	APACHE CORP(RICOTTA DOMINIC)	9/16/2016	9/15/2016
21	3	APACHE CORP(RICOTTA DOMINIC)	9/21/2016	9/13/2016
22	4	APACHE CORP(HOYT REBECCA A)	9/23/2016	9/22/2016
23	4	APACHE CORP(HARRIS MARGERY M)	9/28/2016	9/1/2016
24	4	APACHE CORP(PITMAN CHARLES J)	10/4/2016	9/30/2016
25	4	APACHE CORP(RABUN DANIEL WAYNE)	10/4/2016	9/30/2016
26	4	APACHE CORP(RAGAUSS PETER A)	10/4/2016	9/30/2016
27	4	APACHE CORP(PATTON RODMAN D)	10/4/2016	9/30/2016
28	4	APACHE CORP(NELSON AMY H)	10/4/2016	9/30/2016
29	4	APACHE CORP(LOWE JOHN E)	10/4/2016	9/30/2016
30	4	APACHE CORP(MONTGOMERY WILLIAM C)	10/4/2016	9/30/2016
31	4	APACHE CORP(LAWRENCE GEORGE D)	10/4/2016	9/30/2016
32	4	APACHE CORP(JOUNG CHANSOO)	10/4/2016	9/30/2016
33	4	APACHE CORP(BAY ANNELL R)	10/4/2016	9/30/2016
34	8-K	APACHE CORP	11/3/2016	11/3/2016
35	10-Q	APACHE CORP	11/4/2016	9/30/2016
36	4	APACHE CORP(JOUNG CHANSOO)	11/9/2016	11/9/2016
37	4	APACHE CORP(LOWE JOHN E)	11/9/2016	11/7/2016
38	4	APACHE CORP(CHRISTMANN JOHN J)	11/9/2016	11/7/2016
39	4	APACHE CORP(CHRISTMANN JOHN J)	11/14/2016	11/11/2016
40	4	APACHE CORP(SULLIVAN TIMOTHY J)	11/28/2016	11/23/2016
41	4	APACHE CORP(OLSON W KREGG)	11/28/2016	11/23/2016
42	4	APACHE CORP(HOYT REBECCA A)	11/28/2016	11/23/2016
43	4	APACHE CORP(CHRISTMANN JOHN J)	11/28/2016	11/23/2016
44	4	APACHE CORP(HOUSE JAMES L)	11/28/2016	11/23/2016
45	4	APACHE CORP(RAGAUSS PETER A)	11/28/2016	11/23/2016
46	4	APACHE CORP(RABUN DANIEL WAYNE)	11/28/2016	11/23/2016
47	4	APACHE CORP(PITMAN CHARLES J)	11/28/2016	11/23/2016
48	4	APACHE CORP(PATTON RODMAN D)	11/28/2016	11/23/2016
49	4	APACHE CORP(NELSON AMY H)	11/28/2016	11/23/2016

Exhibit 6**Apache Corporation****List of SEC Filings**Source: Edgar Pro (<http://pro.edgar-online.com/>)

Count	Form Type	Company (Filer)	Received	Period
50	4	APACHE CORP(MONTGOMERY WILLIAM C)	11/28/2016	11/23/2016
51	4	APACHE CORP(LAWRENCE GEORGE D)	11/28/2016	11/23/2016
52	4	APACHE CORP(LOWE JOHN E)	11/28/2016	11/23/2016
53	4	APACHE CORP(JOUNG CHANSOO)	11/28/2016	11/23/2016
54	4	APACHE CORP(BAY ANNELL R)	11/28/2016	11/23/2016
55	4	APACHE CORP(NELSON AMY H)	1/3/2017	12/31/2016
56	4	APACHE CORP(RAGAUSS PETER A)	1/3/2017	12/31/2016
57	4	APACHE CORP(RABUN DANIEL WAYNE)	1/3/2017	12/31/2016
58	4	APACHE CORP(PITMAN CHARLES J)	1/3/2017	
59	4	APACHE CORP(MONTGOMERY WILLIAM C)	1/3/2017	12/31/2016
60	4	APACHE CORP(PATTON RODMAN D)	1/3/2017	12/31/2016
61	4	APACHE CORP(LAWRENCE GEORGE D)	1/3/2017	12/31/2016
62	4	APACHE CORP(LOWE JOHN E)	1/3/2017	12/31/2016
63	4	APACHE CORP(JOUNG CHANSOO)	1/3/2017	12/31/2016
64	4	APACHE CORP(BAY ANNELL R)	1/3/2017	12/31/2016
65	4	APACHE CORP(LAWRENCE GEORGE D)	1/5/2017	1/4/2017
66	4	APACHE CORP(RICOTTA DOMINIC)	1/5/2017	1/4/2017
67	4	APACHE CORP(HOUSE JAMES L)	1/5/2017	1/4/2017
68	4	APACHE CORP(ABLES GRADY L)	1/5/2017	1/4/2017
69	4	APACHE CORP(HOYT REBECCA A)	1/5/2017	1/4/2017
70	4	APACHE CORP(OLSON W KREGG)	1/5/2017	1/4/2017
71	4	APACHE CORP(SULLIVAN TIMOTHY J)	1/5/2017	1/4/2017
72	4	APACHE CORP(LANNIE P ANTHONY)	1/5/2017	1/4/2017
73	4	APACHE CORP(RINEY STEPHEN J)	1/5/2017	1/4/2017
74	4	APACHE CORP(CHRISTMANN JOHN J)	1/5/2017	1/4/2017
75	4	APACHE CORP(SULLIVAN TIMOTHY J)	1/9/2017	1/6/2017
76	4	APACHE CORP(RINEY STEPHEN J)	1/9/2017	1/6/2017
77	4	APACHE CORP(RICOTTA DOMINIC)	1/9/2017	1/6/2017
78	4	APACHE CORP(HOYT REBECCA A)	1/9/2017	1/6/2017
79	4	APACHE CORP(LANNIE P ANTHONY)	1/9/2017	1/6/2017
80	4	APACHE CORP(OLSON W KREGG)	1/9/2017	1/6/2017
81	4	APACHE CORP(HOUSE JAMES L)	1/9/2017	1/6/2017
82	4	APACHE CORP(ABLES GRADY L)	1/9/2017	1/6/2017
83	4	APACHE CORP(CHRISTMANN JOHN J)	1/9/2017	1/6/2017
84	4	APACHE CORP(SULLIVAN TIMOTHY J)	1/10/2017	1/9/2017
85	4	APACHE CORP(OLSON W KREGG)	1/10/2017	1/9/2017
86	4	APACHE CORP(HOUSE JAMES L)	1/10/2017	1/9/2017
87	4	APACHE CORP(LANNIE P ANTHONY)	1/10/2017	1/9/2017
88	4	APACHE CORP(CHRISTMANN JOHN J)	1/10/2017	1/9/2017
89	4	APACHE CORP(SULLIVAN TIMOTHY J)	1/11/2017	1/11/2017
90	4	APACHE CORP(OLSON W KREGG)	1/11/2017	1/11/2017
91	4	APACHE CORP(LANNIE P ANTHONY)	1/11/2017	1/11/2017
92	4	APACHE CORP(HOUSE JAMES L)	1/11/2017	1/11/2017
93	4	APACHE CORP(RICOTTA DOMINIC)	1/11/2017	1/11/2017
94	4	APACHE CORP(CHRISTMANN JOHN J)	1/11/2017	1/11/2017
95	4	APACHE CORP(HOYT REBECCA A)	1/11/2017	1/11/2017
96	4	APACHE CORP(ABLES GRADY L)	1/11/2017	1/11/2017
97	SC 13G/A	APACHE CORP(BLACKROCK INC.)	1/19/2017	
98	SC 13G/A	APACHE CORP(PRICE T ROWE ASSOCIATES INC /MD/)	2/6/2017	

Exhibit 6**Apache Corporation****List of SEC Filings**Source: Edgar Pro (<http://pro.edgar-online.com/>)

Count	Form Type	Company (Filer)	Received	Period
99	4	APACHE CORP(SULLIVAN TIMOTHY J)	2/6/2017	2/5/2017
100	SC 13G/A	APACHE CORP(VANGUARD GROUP INC)	2/9/2017	
101	SC 13G	APACHE CORP(STATE STREET CORP)	2/9/2017	
102	SC 13G/A	APACHE CORP(DODGE & COX)	2/14/2017	
103	SC 13G	APACHE CORP(DAVIS SELECTED ADVISERS)	2/14/2017	
104	4	APACHE CORP(HOYT REBECCA A)	2/21/2017	2/21/2017
105	4	APACHE CORP(RICOTTA DOMINIC)	2/21/2017	2/21/2017
106	4	APACHE CORP(RINEY STEPHEN J)	2/21/2017	2/21/2017
107	4	APACHE CORP(CHRISTMANN JOHN J)	2/21/2017	2/20/2017
108	4	APACHE CORP(HOUSE JAMES L)	2/23/2017	2/22/2017
109	4	APACHE CORP(OLSON W KREGG)	2/23/2017	2/22/2017
110	4	APACHE CORP(CHRISTMANN JOHN J)	2/23/2017	2/22/2017
111	4	APACHE CORP(HOYT REBECCA A)	2/23/2017	2/22/2017
112	4	APACHE CORP(SULLIVAN TIMOTHY J)	2/23/2017	2/22/2017
113	4	APACHE CORP(MONTGOMERY WILLIAM C)	2/23/2017	2/22/2017
114	4	APACHE CORP(PITMAN CHARLES J)	2/23/2017	2/22/2017
115	4	APACHE CORP(RABUN DANIEL WAYNE)	2/23/2017	2/22/2017
116	4	APACHE CORP(RAGAUSS PETER A)	2/23/2017	2/22/2017
117	4	APACHE CORP(PATTON RODMAN D)	2/23/2017	2/22/2017
118	4	APACHE CORP(NELSON AMY H)	2/23/2017	2/22/2017
119	4	APACHE CORP(LAWRENCE GEORGE D)	2/23/2017	2/22/2017
120	4	APACHE CORP(LOWE JOHN E)	2/23/2017	2/22/2017
121	4	APACHE CORP(JOUNG CHANSOO)	2/23/2017	2/22/2017
122	4	APACHE CORP(BAY ANNELL R)	2/23/2017	2/22/2017
123	8-K	APACHE CORP	2/23/2017	2/23/2017
124	10-K	APACHE CORP	2/24/2017	12/31/2016
125	4	APACHE CORP(RICOTTA DOMINIC)	3/2/2017	3/1/2017
126	4	APACHE CORP(RINEY STEPHEN J)	3/2/2017	3/1/2017
127	4	APACHE CORP(SULLIVAN TIMOTHY J)	3/2/2017	3/1/2017
128	4	APACHE CORP(HOUSE JAMES L)	3/2/2017	3/1/2017
129	4	APACHE CORP(HOYT REBECCA A)	3/2/2017	3/1/2017
130	4	APACHE CORP(LANNIE P ANTHONY)	3/2/2017	3/1/2017
131	4	APACHE CORP(OLSON W KREGG)	3/2/2017	3/1/2017
132	4	APACHE CORP(ABLES GRADY L)	3/2/2017	3/1/2017
133	4	APACHE CORP(CHRISTMANN JOHN J)	3/2/2017	3/1/2017
134	SC 13G/A	APACHE CORP(DODGE & COX)	3/20/2017	
135	4	APACHE CORP(RINEY STEPHEN J)	3/20/2017	3/16/2017
136	4	APACHE CORP(CHRISTMANN JOHN J)	3/20/2017	3/16/2017
137	TA-2	APACHE CORP /TA	3/28/2017	12/31/2016
138	DEFA14A	APACHE CORP	3/28/2017	
139	DEF 14A	APACHE CORP	3/28/2017	5/11/2017
140	4	APACHE CORP(RAGAUSS PETER A)	4/3/2017	3/31/2017
141	4	APACHE CORP(RABUN DANIEL WAYNE)	4/3/2017	3/31/2017
142	4	APACHE CORP(PITMAN CHARLES J)	4/3/2017	3/31/2017
143	4	APACHE CORP(PATTON RODMAN D)	4/3/2017	3/31/2017
144	4	APACHE CORP(NELSON AMY H)	4/3/2017	3/31/2017
145	4	APACHE CORP(MONTGOMERY WILLIAM C)	4/3/2017	3/31/2017
146	4	APACHE CORP(LAWRENCE GEORGE D)	4/3/2017	3/31/2017
147	4	APACHE CORP(LOWE JOHN E)	4/3/2017	3/31/2017

Exhibit 6**Apache Corporation****List of SEC Filings**Source: Edgar Pro (<http://pro.edgar-online.com/>)

Count	Form Type	Company (Filer)	Received	Period
148	4	APACHE CORP(JOUNG CHANSOO)	4/3/2017	3/31/2017
149	4	APACHE CORP(BAY ANNELL R)	4/3/2017	3/31/2017
150	4	APACHE CORP(LAWRENCE GEORGE D)	5/3/2017	5/3/2017
151	8-K	APACHE CORP	5/4/2017	5/4/2017
152	10-Q	APACHE CORP	5/5/2017	3/31/2017
153	8-K	APACHE CORP	5/15/2017	5/11/2017
154	3	APACHE CORP(JOYCE RENE R)	5/15/2017	5/11/2017
155	4	APACHE CORP(RINEY STEPHEN J)	5/15/2017	5/12/2017
156	8-K	APACHE CORP	5/16/2017	5/11/2017
157	4	APACHE CORP(JOYCE RENE R)	5/16/2017	5/15/2017
158	4	APACHE CORP(SULLIVAN TIMOTHY J)	5/17/2017	5/16/2017
159	4	APACHE CORP(RICOTTA DOMINIC)	5/17/2017	5/16/2017
160	4	APACHE CORP(LANNIE P ANTHONY)	5/17/2017	5/16/2017
161	4	APACHE CORP(OLSON W KREGG)	5/17/2017	5/16/2017
162	4	APACHE CORP(HOYT REBECCA A)	5/17/2017	5/16/2017
163	4	APACHE CORP(CHRISTMANN JOHN J)	5/17/2017	5/16/2017
164	4	APACHE CORP(HOUSE JAMES L)	5/17/2017	5/16/2017
165	4	APACHE CORP(ABLES GRADY L)	5/17/2017	5/16/2017
166	4	APACHE CORP(RAGAUSS PETER A)	5/23/2017	5/22/2017
167	4	APACHE CORP(PATTON RODMAN D)	5/23/2017	5/22/2017
168	4	APACHE CORP(PITMAN CHARLES J)	5/23/2017	5/22/2017
169	4	APACHE CORP(RABUN DANIEL WAYNE)	5/23/2017	5/22/2017
170	4	APACHE CORP(NELSON AMY H)	5/23/2017	5/22/2017
171	4	APACHE CORP(JOUNG CHANSOO)	5/23/2017	5/22/2017
172	4	APACHE CORP(LOWE JOHN E)	5/23/2017	5/22/2017
173	4	APACHE CORP(MONTGOMERY WILLIAM C)	5/23/2017	5/22/2017
174	4	APACHE CORP(BAY ANNELL R)	5/23/2017	5/22/2017
175	4	APACHE CORP(LAWRENCE GEORGE D)	5/23/2017	5/22/2017
176	4	APACHE CORP(SULLIVAN TIMOTHY J)	5/23/2017	5/22/2017
177	4	APACHE CORP(HOYT REBECCA A)	5/23/2017	5/22/2017
178	4	APACHE CORP(OLSON W KREGG)	5/23/2017	5/22/2017
179	4	APACHE CORP(CHRISTMANN JOHN J)	5/23/2017	5/22/2017
180	4	APACHE CORP(HOUSE JAMES L)	5/23/2017	5/22/2017
181	4	APACHE CORP(SULLIVAN TIMOTHY J)	6/19/2017	6/15/2017
182	4	APACHE CORP(RINEY STEPHEN J)	6/19/2017	6/15/2017
183	4	APACHE CORP(RICOTTA DOMINIC)	6/19/2017	6/15/2017
184	4	APACHE CORP(LANNIE P ANTHONY)	6/19/2017	6/15/2017
185	4	APACHE CORP(OLSON W KREGG)	6/19/2017	6/15/2017
186	4	APACHE CORP(HOUSE JAMES L)	6/19/2017	6/15/2017
187	4	APACHE CORP(HOYT REBECCA A)	6/19/2017	6/15/2017
188	4	APACHE CORP(CHRISTMANN JOHN J)	6/19/2017	6/15/2017
189	4	APACHE CORP(ABLES GRADY L)	6/19/2017	6/15/2017
190	11-K	APACHE CORP	6/22/2017	12/31/2016
191	4	APACHE CORP(PITMAN CHARLES J)	7/5/2017	6/30/2017
192	4	APACHE CORP(RAGAUSS PETER A)	7/5/2017	6/30/2017
193	4	APACHE CORP(PATTON RODMAN D)	7/5/2017	6/30/2017
194	4	APACHE CORP(RABUN DANIEL WAYNE)	7/5/2017	6/30/2017
195	4	APACHE CORP(JOUNG CHANSOO)	7/5/2017	6/30/2017
196	4	APACHE CORP(LAWRENCE GEORGE D)	7/5/2017	6/30/2017

Exhibit 6**Apache Corporation****List of SEC Filings**Source: Edgar Pro (<http://pro.edgar-online.com/>)

Count	Form Type	Company (Filer)	Received	Period
197	4	APACHE CORP(MONTGOMERY WILLIAM C)	7/5/2017	6/30/2017
198	4	APACHE CORP(NELSON AMY H)	7/5/2017	6/30/2017
199	4	APACHE CORP(BAY ANNELL R)	7/5/2017	6/30/2017
200	4	APACHE CORP(JOYCE RENE R)	7/5/2017	6/30/2017
201	4	APACHE CORP(LOWE JOHN E)	7/5/2017	6/30/2017
202	4	APACHE CORP(HOYT REBECCA A)	7/19/2017	7/18/2017
203	4	APACHE CORP(ABLES GRADY L)	7/19/2017	7/18/2017
204	S-3ASR	APACHE CORP	7/19/2017	
205	8-K	APACHE CORP	8/3/2017	8/3/2017
206	10-Q	APACHE CORP	8/4/2017	6/30/2017
207	4	APACHE CORP(LOWE JOHN E)	8/8/2017	8/7/2017
208	4	APACHE CORP(PITMAN CHARLES J)	8/14/2017	8/11/2017
209	4	APACHE CORP(LAWRENCE GEORGE D)	8/14/2017	8/11/2017
210	4	APACHE CORP(CHRISTMANN JOHN J)	8/14/2017	8/11/2017
211	4	APACHE CORP(RINEY STEPHEN J)	8/16/2017	8/15/2017
212	4	APACHE CORP(LOWE JOHN E)	8/17/2017	8/17/2017
213	4	APACHE CORP(SULLIVAN TIMOTHY J)	8/24/2017	8/22/2017
214	4	APACHE CORP(OLSON W KREGG)	8/24/2017	8/22/2017
215	4	APACHE CORP(HOYT REBECCA A)	8/24/2017	8/22/2017
216	4	APACHE CORP(HOUSE JAMES L)	8/24/2017	8/22/2017
217	4	APACHE CORP(CHRISTMANN JOHN J)	8/24/2017	8/22/2017
218	4	APACHE CORP(RAGAUSS PETER A)	8/24/2017	8/22/2017
219	4	APACHE CORP(RABUN DANIEL WAYNE)	8/24/2017	8/22/2017
220	4	APACHE CORP(PITMAN CHARLES J)	8/24/2017	8/22/2017
221	4	APACHE CORP(PATTON RODMAN D)	8/24/2017	8/22/2017
222	4	APACHE CORP(NELSON AMY H)	8/24/2017	8/22/2017
223	4	APACHE CORP(MONTGOMERY WILLIAM C)	8/24/2017	8/22/2017
224	4	APACHE CORP(LOWE JOHN E)	8/24/2017	8/22/2017
225	4	APACHE CORP(LAWRENCE GEORGE D)	8/24/2017	8/22/2017
226	4	APACHE CORP(JOYCE RENE R)	8/24/2017	8/22/2017
227	4	APACHE CORP(JOUNG CHANSOO)	8/24/2017	8/22/2017
228	4	APACHE CORP(BAY ANNELL R)	8/24/2017	8/22/2017
229	4	APACHE CORP(OLSON W KREGG)	9/13/2017	9/12/2017
230	4	APACHE CORP(RAGAUSS PETER A)	10/2/2017	9/30/2017
231	4	APACHE CORP(RABUN DANIEL WAYNE)	10/2/2017	9/30/2017
232	4	APACHE CORP(PITMAN CHARLES J)	10/2/2017	9/30/2017
233	4	APACHE CORP(PATTON RODMAN D)	10/2/2017	9/30/2017
234	4	APACHE CORP(NELSON AMY H)	10/2/2017	9/30/2017
235	4	APACHE CORP(MONTGOMERY WILLIAM C)	10/2/2017	9/30/2017
236	4	APACHE CORP(LOWE JOHN E)	10/2/2017	9/30/2017
237	4	APACHE CORP(LAWRENCE GEORGE D)	10/2/2017	9/30/2017
238	4	APACHE CORP(JOYCE RENE R)	10/2/2017	9/30/2017
239	4	APACHE CORP(JOUNG CHANSOO)	10/2/2017	9/30/2017
240	4	APACHE CORP(BAY ANNELL R)	10/2/2017	9/30/2017
241	4	APACHE CORP(RICOTTA DOMINIC)	10/3/2017	10/1/2017
242	8-K	APACHE CORP	11/2/2017	11/2/2017
243	10-Q	APACHE CORP	11/3/2017	9/30/2017
244	4	APACHE CORP(CHRISTMANN JOHN J)	11/14/2017	11/13/2017
245	4	APACHE CORP(RAGAUSS PETER A)	11/27/2017	11/22/2017

Exhibit 6**Apache Corporation****List of SEC Filings**Source: Edgar Pro (<http://pro.edgar-online.com/>)

Count	Form Type	Company (Filer)	Received	Period
246	4	APACHE CORP(RABUN DANIEL WAYNE)	11/27/2017	11/22/2017
247	4	APACHE CORP(PITMAN CHARLES J)	11/27/2017	11/22/2017
248	4	APACHE CORP(PATTON RODMAN D)	11/27/2017	11/22/2017
249	4	APACHE CORP(NELSON AMY H)	11/27/2017	11/22/2017
250	4	APACHE CORP(MONTGOMERY WILLIAM C)	11/27/2017	11/22/2017
251	4	APACHE CORP(LOWE JOHN E)	11/27/2017	11/22/2017
252	4	APACHE CORP(JOYCE RENE R)	11/27/2017	11/22/2017
253	4	APACHE CORP(LAWRENCE GEORGE D)	11/27/2017	11/22/2017
254	4	APACHE CORP(JOUNG CHANSOO)	11/27/2017	11/22/2017
255	4	APACHE CORP(BAY ANNELL R)	11/27/2017	11/22/2017
256	4	APACHE CORP(SULLIVAN TIMOTHY J)	11/27/2017	11/22/2017
257	4	APACHE CORP(OLSON W KREGG)	11/27/2017	11/22/2017
258	4	APACHE CORP(HOYT REBECCA A)	11/27/2017	11/22/2017
259	4	APACHE CORP(HOUSE JAMES L)	11/27/2017	11/22/2017
260	4	APACHE CORP(CHRISTMANN JOHN J)	11/27/2017	11/22/2017
261	4	APACHE CORP(LANNIE P ANTHONY)	12/1/2017	12/1/2017
262	8-K	APACHE CORP	12/13/2017	12/7/2017
263	4	APACHE CORP(LOWE JOHN E)	12/14/2017	12/13/2017
264	8-K	APACHE CORP	12/20/2017	12/18/2017
265	4	APACHE CORP(RAGAUSS PETER A)	1/2/2018	12/31/2017
266	4	APACHE CORP(RABUN DANIEL WAYNE)	1/2/2018	12/31/2017
267	4	APACHE CORP(PITMAN CHARLES J)	1/2/2018	12/31/2017
268	4	APACHE CORP(PATTON RODMAN D)	1/2/2018	12/31/2017
269	4	APACHE CORP(NELSON AMY H)	1/2/2018	12/31/2017
270	4	APACHE CORP(MONTGOMERY WILLIAM C)	1/2/2018	12/31/2017
271	4	APACHE CORP(LOWE JOHN E)	1/2/2018	12/31/2017
272	4	APACHE CORP(LAWRENCE GEORGE D)	1/2/2018	12/31/2017
273	4	APACHE CORP(JOYCE RENE R)	1/2/2018	12/31/2017
274	4	APACHE CORP(JOUNG CHANSOO)	1/2/2018	12/31/2017
275	4	APACHE CORP(BAY ANNELL R)	1/2/2018	12/31/2017
276	4	APACHE CORP(SULLIVAN TIMOTHY J)	1/3/2018	1/3/2018
277	4	APACHE CORP(RICOTTA DOMINIC)	1/3/2018	1/3/2018
278	4	APACHE CORP(OLSON W KREGG)	1/3/2018	1/3/2018
279	4	APACHE CORP(LANNIE P ANTHONY)	1/3/2018	1/3/2018
280	4	APACHE CORP(HOYT REBECCA A)	1/3/2018	1/3/2018
281	4	APACHE CORP(CHRISTMANN JOHN J)	1/3/2018	1/3/2018
282	4	APACHE CORP(SULLIVAN TIMOTHY J)	1/4/2018	1/3/2018
283	4	APACHE CORP(RICOTTA DOMINIC)	1/4/2018	1/3/2018
284	4	APACHE CORP(OLSON W KREGG)	1/4/2018	1/3/2018
285	4	APACHE CORP(LANNIE P ANTHONY)	1/4/2018	1/3/2018
286	4	APACHE CORP(HOYT REBECCA A)	1/4/2018	1/3/2018
287	4	APACHE CORP(CHRISTMANN JOHN J)	1/4/2018	1/3/2018
288	4	APACHE CORP(ABLES GRADY L)	1/4/2018	1/3/2018
289	4	APACHE CORP(LAWRENCE GEORGE D)	1/4/2018	1/4/2018
290	4	APACHE CORP(SULLIVAN TIMOTHY J)	1/10/2018	1/10/2018
291	4	APACHE CORP(RICOTTA DOMINIC)	1/10/2018	1/10/2018
292	4	APACHE CORP(OLSON W KREGG)	1/10/2018	1/10/2018
293	4	APACHE CORP(LANNIE P ANTHONY)	1/10/2018	1/10/2018
294	4	APACHE CORP(HOYT REBECCA A)	1/10/2018	1/10/2018

Exhibit 6**Apache Corporation****List of SEC Filings**Source: Edgar Pro (<http://pro.edgar-online.com/>)

Count	Form Type	Company (Filer)	Received	Period
295	4	APACHE CORP(CHRISTMANN JOHN J)	1/10/2018	1/10/2018
296	4	APACHE CORP(ABLES GRADY L)	1/10/2018	1/10/2018
297	4	APACHE CORP(SULLIVAN TIMOTHY J)	1/19/2018	1/17/2018
298	4	APACHE CORP(RINEY STEPHEN J)	1/19/2018	1/17/2018
299	4	APACHE CORP(RICOTTA DOMINIC)	1/19/2018	1/17/2018
300	4	APACHE CORP(OLSON W KREGG)	1/19/2018	1/17/2018
301	4	APACHE CORP(LANNIE P ANTHONY)	1/19/2018	1/17/2018
302	4	APACHE CORP(HOYT REBECCA A)	1/19/2018	1/17/2018
303	4	APACHE CORP(CHRISTMANN JOHN J)	1/19/2018	1/17/2018
304	4	APACHE CORP(ABLES GRADY L)	1/19/2018	1/17/2018
305	8-K	APACHE CORP	1/19/2018	1/16/2018
306	4	APACHE CORP(HOYT REBECCA A)	2/6/2018	2/5/2018
307	4	APACHE CORP(CHRISTMANN JOHN J)	2/6/2018	2/5/2018
308	4	APACHE CORP(LANNIE P ANTHONY)	2/6/2018	2/5/2018
309	4	APACHE CORP(OLSON W KREGG)	2/6/2018	2/5/2018
310	4	APACHE CORP(SULLIVAN TIMOTHY J)	2/6/2018	2/5/2018
311	4	APACHE CORP(RICOTTA DOMINIC)	2/6/2018	2/5/2018
312	4	APACHE CORP(RINEY STEPHEN J)	2/6/2018	2/5/2018
313	4	APACHE CORP(ABLES GRADY L)	2/6/2018	2/5/2018
314	SC 13G/A	APACHE CORP(BLACKROCK INC.)	2/8/2018	
315	8-K	APACHE CORP	2/12/2018	2/8/2018
316	SC 13G/A	APACHE CORP(VANGUARD GROUP INC)	2/12/2018	
317	4	APACHE CORP(LAWRENCE GEORGE D)	2/13/2018	2/13/2018
318	SC 13G/A	APACHE CORP(DODGE & COX)	2/13/2018	
319	SC 13G	APACHE CORP(STATE STREET CORP)	2/13/2018	
320	SC 13G/A	APACHE CORP(DAVIS SELECTED ADVISERS)	2/13/2018	
321	4	APACHE CORP(RICOTTA DOMINIC)	2/21/2018	2/19/2018
322	4	APACHE CORP(HOYT REBECCA A)	2/21/2018	2/19/2018
323	4	APACHE CORP(RINEY STEPHEN J)	2/21/2018	2/18/2018
324	4	APACHE CORP(CHRISTMANN JOHN J)	2/21/2018	2/18/2018
325	8-K	APACHE CORP	2/22/2018	2/22/2018
326	4	APACHE CORP(RAGAUSS PETER A)	2/23/2018	2/22/2018
327	4	APACHE CORP(RABUN DANIEL WAYNE)	2/23/2018	2/22/2018
328	4	APACHE CORP(PATTON RODMAN D)	2/23/2018	2/22/2018
329	4	APACHE CORP(NELSON AMY H)	2/23/2018	2/22/2018
330	4	APACHE CORP(LOWE JOHN E)	2/23/2018	2/22/2018
331	4	APACHE CORP(MONTGOMERY WILLIAM C)	2/23/2018	2/22/2018
332	4	APACHE CORP(JOYCE RENE R)	2/23/2018	2/22/2018
333	4	APACHE CORP(LAWRENCE GEORGE D)	2/23/2018	2/22/2018
334	4	APACHE CORP(BAY ANNELL R)	2/23/2018	2/22/2018
335	4	APACHE CORP(JOUNG CHANSOO)	2/23/2018	2/22/2018
336	4	APACHE CORP(SULLIVAN TIMOTHY J)	2/23/2018	2/22/2018
337	4	APACHE CORP(OLSON W KREGG)	2/23/2018	2/22/2018
338	4	APACHE CORP(CHRISTMANN JOHN J)	2/23/2018	2/22/2018
339	4	APACHE CORP(HOYT REBECCA A)	2/23/2018	2/22/2018
340	10-K	APACHE CORP	2/23/2018	12/31/2017
341	4	APACHE CORP(RICOTTA DOMINIC)	2/27/2018	2/26/2018
342	4	APACHE CORP(RINEY STEPHEN J)	2/27/2018	2/26/2018
343	4	APACHE CORP(CHRISTMANN JOHN J)	2/27/2018	2/26/2018

Exhibit 6**Apache Corporation****List of SEC Filings**Source: Edgar Pro (<http://pro.edgar-online.com/>)

Count	Form Type	Company (Filer)	Received	Period
344	4	APACHE CORP(LOWE JOHN E)	3/2/2018	3/2/2018
345	8-K	APACHE CORP	3/19/2018	3/14/2018
346	TA-2	APACHE CORP /TA	3/22/2018	12/31/2017
347	4	APACHE CORP(RAGAUSS PETER A)	4/2/2018	3/31/2018
348	4	APACHE CORP(RABUN DANIEL WAYNE)	4/2/2018	3/31/2018
349	4	APACHE CORP(PATTON RODMAN D)	4/2/2018	3/31/2018
350	4	APACHE CORP(NELSON AMY H)	4/2/2018	3/31/2018
351	4	APACHE CORP(MONTGOMERY WILLIAM C)	4/2/2018	3/31/2018
352	4	APACHE CORP(LOWE JOHN E)	4/2/2018	3/31/2018
353	4	APACHE CORP(LAWRENCE GEORGE D)	4/2/2018	3/31/2018
354	4	APACHE CORP(JOYCE RENE R)	4/2/2018	3/31/2018
355	4	APACHE CORP(JOUNG CHANSOO)	4/2/2018	3/31/2018
356	4	APACHE CORP(BAY ANNELL R)	4/2/2018	3/31/2018
357	DEFA14A	APACHE CORP	4/9/2018	
358	DEF 14A	APACHE CORP	4/9/2018	5/24/2018
359	8-K	APACHE CORP	4/20/2018	4/16/2018
360	10-Q	APACHE CORP	5/3/2018	3/31/2018
361	8-K	APACHE CORP	5/3/2018	5/2/2018
362	DEFA14A	APACHE CORP	5/8/2018	
363	SC 13G/A	APACHE CORP(DODGE & COX)	5/10/2018	
364	DEFA14A	APACHE CORP	5/10/2018	
365	4	APACHE CORP(SULLIVAN TIMOTHY J)	5/15/2018	5/13/2018
366	4	APACHE CORP(RICOTTA DOMINIC)	5/15/2018	5/13/2018
367	4	APACHE CORP(LANNIE P ANTHONY)	5/15/2018	5/13/2018
368	4	APACHE CORP(HOYT REBECCA A)	5/15/2018	5/13/2018
369	4	APACHE CORP(CHRISTMANN JOHN J)	5/15/2018	5/13/2018
370	4	APACHE CORP(OLSON W KREGG)	5/15/2018	5/13/2018
371	DEFA14A	APACHE CORP	5/15/2018	
372	4	APACHE CORP(SULLIVAN TIMOTHY J)	5/24/2018	5/22/2018
373	4	APACHE CORP(OLSON W KREGG)	5/24/2018	5/22/2018
374	4	APACHE CORP(HOYT REBECCA A)	5/24/2018	5/22/2018
375	4	APACHE CORP(CHRISTMANN JOHN J)	5/24/2018	5/22/2018
376	4	APACHE CORP(PATTON RODMAN D)	5/24/2018	5/22/2018
377	4	APACHE CORP(RAGAUSS PETER A)	5/24/2018	5/22/2018
378	4	APACHE CORP(MONTGOMERY WILLIAM C)	5/24/2018	5/22/2018
379	4	APACHE CORP(NELSON AMY H)	5/24/2018	5/22/2018
380	4	APACHE CORP(RABUN DANIEL WAYNE)	5/24/2018	5/22/2018
381	4	APACHE CORP(LOWE JOHN E)	5/24/2018	5/22/2018
382	4	APACHE CORP(LAWRENCE GEORGE D)	5/24/2018	5/22/2018
383	4	APACHE CORP(JOYCE RENE R)	5/24/2018	5/22/2018
384	4	APACHE CORP(JOUNG CHANSOO)	5/24/2018	5/22/2018
385	4	APACHE CORP(BAY ANNELL R)	5/24/2018	5/22/2018
386	8-K	APACHE CORP	5/31/2018	5/24/2018
387	4	APACHE CORP(LOWE JOHN E)	6/5/2018	6/5/2018
388	4	APACHE CORP(HOYT REBECCA A)	6/18/2018	6/15/2018
389	4	APACHE CORP(SULLIVAN TIMOTHY J)	6/18/2018	6/15/2018
390	4	APACHE CORP(RINEY STEPHEN J)	6/18/2018	6/15/2018
391	4	APACHE CORP(LANNIE P ANTHONY)	6/18/2018	6/15/2018
392	4	APACHE CORP(OLSON W KREGG)	6/18/2018	6/15/2018

Exhibit 6**Apache Corporation****List of SEC Filings**Source: Edgar Pro (<http://pro.edgar-online.com/>)

Count	Form Type	Company (Filer)	Received	Period
393	4	APACHE CORP(RICOTTA DOMINIC)	6/18/2018	6/15/2018
394	4	APACHE CORP(CHRISTMANN JOHN J)	6/18/2018	6/15/2018
395	4	APACHE CORP(ABLES GRADY L)	6/18/2018	6/15/2018
396	11-K	APACHE CORP	6/21/2018	12/31/2017
397	4	APACHE CORP(BAY ANNELL R)	7/2/2018	6/30/2018
398	4	APACHE CORP(RAGAUSS PETER A)	7/2/2018	6/30/2018
399	4	APACHE CORP(RABUN DANIEL WAYNE)	7/2/2018	6/30/2018
400	4	APACHE CORP(NELSON AMY H)	7/2/2018	6/30/2018
401	4	APACHE CORP(MONTGOMERY WILLIAM C)	7/2/2018	6/30/2018
402	4	APACHE CORP(JOYCE RENE R)	7/2/2018	6/30/2018
403	4	APACHE CORP(LAWRENCE GEORGE D)	7/2/2018	6/30/2018
404	4	APACHE CORP(LOWE JOHN E)	7/2/2018	6/30/2018
405	4	APACHE CORP(JOUNG CHANSOO)	7/2/2018	6/30/2018
406	SC 13G/A	APACHE CORP(VANGUARD GROUP INC)	7/10/2018	
407	4	APACHE CORP(HOYT REBECCA A)	7/16/2018	7/15/2018
408	4	APACHE CORP(ABLES GRADY L)	7/16/2018	7/15/2018
409	10-Q	APACHE CORP	8/2/2018	6/30/2018
410	8-K	APACHE CORP	8/2/2018	8/1/2018
411	8-K	APACHE CORP	8/8/2018	8/8/2018
412	FWP	APACHE CORP	8/14/2018	
413	424B5	APACHE CORP	8/14/2018	
414	POSASR	APACHE CORP	8/14/2018	
415	424B2	APACHE CORP	8/16/2018	
416	8-K	APACHE CORP	8/16/2018	8/14/2018
417	4	APACHE CORP(HOYT REBECCA A)	8/23/2018	8/22/2018
418	4	APACHE CORP(CHRISTMANN JOHN J)	8/23/2018	8/22/2018
419	4	APACHE CORP(SULLIVAN TIMOTHY J)	8/23/2018	8/22/2018
420	4	APACHE CORP(MONTGOMERY WILLIAM C)	8/23/2018	8/22/2018
421	4	APACHE CORP(RAGAUSS PETER A)	8/23/2018	8/22/2018
422	4	APACHE CORP(NELSON AMY H)	8/23/2018	8/22/2018
423	4	APACHE CORP(LOWE JOHN E)	8/23/2018	8/22/2018
424	4	APACHE CORP(RABUN DANIEL WAYNE)	8/23/2018	8/22/2018
425	4	APACHE CORP(LAWRENCE GEORGE D)	8/23/2018	8/22/2018
426	4	APACHE CORP(JOYCE RENE R)	8/23/2018	8/22/2018
427	4	APACHE CORP(JOUNG CHANSOO)	8/23/2018	8/22/2018
428	4	APACHE CORP(BAY ANNELL R)	8/23/2018	8/22/2018
429	4	APACHE CORP(RICOTTA DOMINIC)	8/29/2018	8/27/2018
430	4	APACHE CORP(CHRISTMANN JOHN J)	8/29/2018	8/27/2018
431	4	APACHE CORP(RINEY STEPHEN J)	8/29/2018	8/27/2018
432	4	APACHE CORP(RICOTTA DOMINIC)	9/17/2018	9/14/2018
433	4	APACHE CORP(HOYT REBECCA A)	9/28/2018	9/27/2018
434	4	APACHE CORP(LAWRENCE GEORGE D)	10/1/2018	9/30/2018
435	4	APACHE CORP(RAGAUSS PETER A)	10/1/2018	9/30/2018
436	4	APACHE CORP(NELSON AMY H)	10/1/2018	9/30/2018
437	4	APACHE CORP(RABUN DANIEL WAYNE)	10/1/2018	9/30/2018
438	4	APACHE CORP(MONTGOMERY WILLIAM C)	10/1/2018	9/30/2018
439	4	APACHE CORP(JOYCE RENE R)	10/1/2018	9/30/2018
440	4	APACHE CORP(LOWE JOHN E)	10/1/2018	9/30/2018
441	4	APACHE CORP(JOUNG CHANSOO)	10/1/2018	9/30/2018

Exhibit 6**Apache Corporation****List of SEC Filings**Source: Edgar Pro (<http://pro.edgar-online.com/>)

Count	Form Type	Company (Filer)	Received	Period
442	4	APACHE CORP(BAY ANNELL R)	10/1/2018	9/30/2018
443	10-Q	APACHE CORP	11/1/2018	9/30/2018
444	8-K	APACHE CORP	11/1/2018	10/31/2018
445	4	APACHE CORP(CHRISTMANN JOHN J)	11/13/2018	11/11/2018
446	4	APACHE CORP(JOUNG CHANSOO)	11/26/2018	11/21/2018
447	4	APACHE CORP(JOYCE RENE R)	11/26/2018	11/21/2018
448	4	APACHE CORP(LAWRENCE GEORGE D)	11/26/2018	11/21/2018
449	4	APACHE CORP(LOWE JOHN E)	11/26/2018	11/21/2018
450	4	APACHE CORP(MONTGOMERY WILLIAM C)	11/26/2018	11/21/2018
451	4	APACHE CORP(NELSON AMY H)	11/26/2018	11/21/2018
452	4	APACHE CORP(RABUN DANIEL WAYNE)	11/26/2018	11/21/2018
453	4	APACHE CORP(RAGAUSS PETER A)	11/26/2018	11/21/2018
454	4	APACHE CORP(BAY ANNELL R)	11/26/2018	11/21/2018
455	4	APACHE CORP(CHRISTMANN JOHN J)	11/26/2018	11/21/2018
456	4	APACHE CORP(SULLIVAN TIMOTHY J)	11/26/2018	11/21/2018
457	4	APACHE CORP(HOYT REBECCA A)	11/26/2018	11/21/2018
458	3	KINETIK HOLDINGS INC.(ALTUS MIDSTREAM CO) (APACHE CORP)	12/10/2018	11/9/2018
459	SC 13D	KINETIK HOLDINGS INC.(ALTUS MIDSTREAM CO) (APACHE CORP)	12/10/2018	
460	4	APACHE CORP(SULLIVAN TIMOTHY J)	1/3/2019	12/31/2018
461	4	APACHE CORP(LANNIE P ANTHONY)	1/3/2019	12/31/2018
462	4	APACHE CORP(RICOTTA DOMINIC)	1/3/2019	12/31/2018
463	4	APACHE CORP(ABLES GRADY L)	1/3/2019	12/31/2018
464	4	APACHE CORP(HOYT REBECCA A)	1/3/2019	12/31/2018
465	4	APACHE CORP(CHRISTMANN JOHN J)	1/3/2019	12/31/2018
466	4	APACHE CORP(RAGAUSS PETER A)	1/3/2019	12/31/2018
467	4	APACHE CORP(RABUN DANIEL WAYNE)	1/3/2019	12/31/2018
468	4	APACHE CORP(NELSON AMY H)	1/3/2019	12/31/2018
469	4	APACHE CORP(MONTGOMERY WILLIAM C)	1/3/2019	12/31/2018
470	4	APACHE CORP(LOWE JOHN E)	1/3/2019	12/31/2018
471	4	APACHE CORP(LAWRENCE GEORGE D)	1/3/2019	12/31/2018
472	4	APACHE CORP(JOYCE RENE R)	1/3/2019	12/31/2018
473	4	APACHE CORP(JOUNG CHANSOO)	1/3/2019	12/31/2018
474	4	APACHE CORP(BAY ANNELL R)	1/3/2019	12/31/2018
475	4	APACHE CORP(LAWRENCE GEORGE D)	1/4/2019	1/2/2019
476	4	APACHE CORP(PURSELL DAVID A)	1/7/2019	1/3/2019
477	4	APACHE CORP(MEYER WILLIAM MARK)	1/7/2019	1/3/2019
478	4	APACHE CORP(RICOTTA DOMINIC)	1/7/2019	1/3/2019
479	4	APACHE CORP(ABLES GRADY L)	1/7/2019	1/3/2019
480	4	APACHE CORP(HOYT REBECCA A)	1/7/2019	1/3/2019
481	4	APACHE CORP(SULLIVAN TIMOTHY J)	1/7/2019	1/3/2019
482	4	APACHE CORP(LANNIE P ANTHONY)	1/7/2019	1/3/2019
483	4	APACHE CORP(RINEY STEPHEN J)	1/7/2019	1/3/2019
484	4	APACHE CORP(CHRISTMANN JOHN J)	1/7/2019	1/3/2019
485	3	APACHE CORP(PURSELL DAVID A)	1/7/2019	1/1/2019
486	3	APACHE CORP(MEYER WILLIAM MARK)	1/7/2019	1/1/2019
487	4/A	APACHE CORP(RICOTTA DOMINIC)	1/7/2019	1/4/2017
488	8-K	APACHE CORP	1/7/2019	1/3/2019
489	4	APACHE CORP(HOYT REBECCA A)	1/8/2019	1/5/2019
490	4	APACHE CORP(RICOTTA DOMINIC)	1/8/2019	1/5/2019

Exhibit 6**Apache Corporation****List of SEC Filings**Source: Edgar Pro (<http://pro.edgar-online.com/>)

Count	Form Type	Company (Filer)	Received	Period
491	4	APACHE CORP(SULLIVAN TIMOTHY J)	1/8/2019	1/5/2019
492	4	APACHE CORP(RINEY STEPHEN J)	1/8/2019	1/5/2019
493	4	APACHE CORP(LANNIE P ANTHONY)	1/8/2019	1/5/2019
494	4	APACHE CORP(CHRISTMANN JOHN J)	1/8/2019	1/5/2019
495	4	APACHE CORP(ABLES GRADY L)	1/8/2019	1/5/2019
496	SC 13G	APACHE CORP(BAILLIE GIFFORD & CO)	1/9/2019	
497	4	APACHE CORP(ABLES GRADY L)	1/24/2019	1/22/2019
498	4	APACHE CORP(CHRISTMANN JOHN J)	1/24/2019	1/22/2019
499	4	APACHE CORP(HOYT REBECCA A)	1/24/2019	1/22/2019
500	4	APACHE CORP(RINEY STEPHEN J)	1/24/2019	1/22/2019
501	4	APACHE CORP(RICOTTA DOMINIC)	1/24/2019	1/22/2019
502	4	APACHE CORP(LANNIE P ANTHONY)	1/24/2019	1/22/2019
503	4	APACHE CORP(SULLIVAN TIMOTHY J)	1/24/2019	1/22/2019
504	SC 13G/A	APACHE CORP(BLACKROCK INC.)	2/4/2019	
505	4	APACHE CORP(SULLIVAN TIMOTHY J)	2/5/2019	2/1/2019
506	4	APACHE CORP(RINEY STEPHEN J)	2/5/2019	2/1/2019
507	4	APACHE CORP(RICOTTA DOMINIC)	2/5/2019	2/1/2019
508	4	APACHE CORP(LANNIE P ANTHONY)	2/5/2019	2/1/2019
509	4	APACHE CORP(CHRISTMANN JOHN J)	2/5/2019	2/1/2019
510	4	APACHE CORP(HOYT REBECCA A)	2/5/2019	2/1/2019
511	4	APACHE CORP(ABLES GRADY L)	2/5/2019	2/1/2019
512	8-K	APACHE CORP	2/8/2019	2/4/2019
513	SC 13G/A	APACHE CORP(VANGUARD GROUP INC)	2/11/2019	
514	SC 13G/A	APACHE CORP(DAVIS SELECTED ADVISERS)	2/13/2019	
515	SC 13G	APACHE CORP(STATE STREET CORP)	2/13/2019	
516	SC 13G/A	APACHE CORP(DODGE & COX)	2/14/2019	
517	SC 13G	APACHE CORP(HARRIS ASSOCIATES L P)	2/14/2019	
518	4	APACHE CORP(RINEY STEPHEN J)	2/20/2019	2/18/2019
519	4	APACHE CORP(CHRISTMANN JOHN J)	2/20/2019	2/18/2019
520	4	APACHE CORP(SULLIVAN TIMOTHY J)	2/26/2019	2/22/2019
521	4	APACHE CORP(HOYT REBECCA A)	2/26/2019	2/22/2019
522	4	APACHE CORP(CHRISTMANN JOHN J)	2/26/2019	2/22/2019
523	4	APACHE CORP(RAGAUSS PETER A)	2/26/2019	2/22/2019
524	4	APACHE CORP(RABUN DANIEL WAYNE)	2/26/2019	2/22/2019
525	4	APACHE CORP(NELSON AMY H)	2/26/2019	2/22/2019
526	4	APACHE CORP(MONTGOMERY WILLIAM C)	2/26/2019	2/22/2019
527	4	APACHE CORP(LOWE JOHN E)	2/26/2019	2/22/2019
528	4	APACHE CORP(LAWRENCE GEORGE D)	2/26/2019	2/22/2019
529	4	APACHE CORP(JOYCE RENE R)	2/26/2019	2/22/2019
530	4	APACHE CORP(JOUNG CHANSOO)	2/26/2019	2/22/2019
531	4	APACHE CORP(BAY ANNELL R)	2/26/2019	2/22/2019
532	8-K	APACHE CORP	2/28/2019	2/27/2019
533	10-K	APACHE CORP	3/1/2019	12/31/2018
534	SC 13D/A	KINETIK HOLDINGS INC.(ALTUS MIDSTREAM CO) (APACHE CORP)	3/11/2019	
535	TA-2	APACHE CORP /TA	3/27/2019	12/31/2018
536	4	APACHE CORP(RAGAUSS PETER A)	4/1/2019	3/31/2019
537	4	APACHE CORP(NELSON AMY H)	4/1/2019	3/31/2019
538	4	APACHE CORP(RABUN DANIEL WAYNE)	4/1/2019	3/31/2019
539	4	APACHE CORP(MONTGOMERY WILLIAM C)	4/1/2019	3/31/2019

Exhibit 6**Apache Corporation****List of SEC Filings**Source: Edgar Pro (<http://pro.edgar-online.com/>)

Count	Form Type	Company (Filer)	Received	Period
540	4	APACHE CORP(LOWE JOHN E)	4/1/2019	3/31/2019
541	4	APACHE CORP(LAWRENCE GEORGE D)	4/1/2019	3/31/2019
542	4	APACHE CORP(JOYCE RENE R)	4/1/2019	3/31/2019
543	4	APACHE CORP(JOUNG CHANSOO)	4/1/2019	3/31/2019
544	4	APACHE CORP(BAY ANNELL R)	4/1/2019	3/31/2019
545	4	APACHE CORP(PURSELL DAVID A)	4/2/2019	4/1/2019
546	4	APACHE CORP(MEYER WILLIAM MARK)	4/2/2019	4/1/2019
547	DEFA14A	APACHE CORP	4/9/2019	
548	DEF 14A	APACHE CORP	4/9/2019	5/23/2019
549	8-K	APACHE CORP	5/2/2019	5/1/2019
550	10-Q	APACHE CORP	5/3/2019	3/31/2019
551	4	APACHE CORP(LOWE JOHN E)	5/7/2019	5/7/2019
552	4	APACHE CORP(RINEY STEPHEN J)	5/8/2019	5/7/2019
553	4	APACHE CORP(CHRISTMANN JOHN J)	5/8/2019	5/7/2019
554	4	APACHE CORP(CHRISTMANN JOHN J)	5/23/2019	5/22/2019
555	3	APACHE CORP(ELLIS JULIET S)	5/23/2019	5/23/2019
556	4	APACHE CORP(SULLIVAN TIMOTHY J)	5/23/2019	5/22/2019
557	4	APACHE CORP(HOYT REBECCA A)	5/23/2019	5/22/2019
558	4	APACHE CORP(RAGAUSS PETER A)	5/23/2019	5/22/2019
559	4	APACHE CORP(RABUN DANIEL WAYNE)	5/23/2019	5/22/2019
560	4	APACHE CORP(NELSON AMY H)	5/23/2019	5/22/2019
561	4	APACHE CORP(MONTGOMERY WILLIAM C)	5/23/2019	5/22/2019
562	4	APACHE CORP(LOWE JOHN E)	5/23/2019	5/22/2019
563	4	APACHE CORP(JOYCE RENE R)	5/23/2019	5/22/2019
564	4	APACHE CORP(JOUNG CHANSOO)	5/23/2019	5/22/2019
565	4	APACHE CORP(BAY ANNELL R)	5/23/2019	5/22/2019
566	4	APACHE CORP(LAWRENCE GEORGE D)	5/23/2019	5/22/2019
567	4	APACHE CORP(ELLIS JULIET S)	5/28/2019	5/24/2019
568	8-K	APACHE CORP	5/28/2019	5/23/2019
569	4	APACHE CORP(MEYER WILLIAM MARK)	6/3/2019	5/31/2019
570	424B5	APACHE CORP	6/5/2019	
571	424B2	APACHE CORP	6/6/2019	
572	FWP	APACHE CORP	6/6/2019	
573	8-K	APACHE CORP	6/10/2019	6/5/2019
574	FWP	APACHE CORP	6/11/2019	
575	11-K	APACHE CORP	6/21/2019	12/31/2018
576	4	APACHE CORP(NELSON AMY H)	7/1/2019	6/30/2019
577	4	APACHE CORP(RABUN DANIEL WAYNE)	7/1/2019	6/30/2019
578	4	APACHE CORP(RAGAUSS PETER A)	7/1/2019	6/30/2019
579	4	APACHE CORP(MONTGOMERY WILLIAM C)	7/1/2019	6/30/2019
580	4	APACHE CORP(LOWE JOHN E)	7/1/2019	6/30/2019
581	4	APACHE CORP(JOYCE RENE R)	7/1/2019	6/30/2019
582	4	APACHE CORP(JOUNG CHANSOO)	7/1/2019	6/30/2019
583	4	APACHE CORP(ELLIS JULIET S)	7/1/2019	6/30/2019
584	4	APACHE CORP(BAY ANNELL R)	7/1/2019	6/30/2019
585	4	APACHE CORP(HOYT REBECCA A)	7/16/2019	7/15/2019
586	4	APACHE CORP(ABLES GRADY L)	7/16/2019	7/15/2019
587	10-Q	APACHE CORP	8/1/2019	6/30/2019
588	8-K	APACHE CORP	8/1/2019	7/31/2019

Exhibit 6**Apache Corporation****List of SEC Filings**Source: Edgar Pro (<http://pro.edgar-online.com/>)

Count	Form Type	Company (Filer)	Received	Period
589	SC 13G/A	APACHE CORP(BAILLIE GIFFORD & CO)	8/5/2019	
590	4	APACHE CORP(LOWE JOHN E)	8/7/2019	8/7/2019
591	4	APACHE CORP(SULLIVAN TIMOTHY J)	8/23/2019	8/22/2019
592	4	APACHE CORP(HOYT REBECCA A)	8/23/2019	8/22/2019
593	4	APACHE CORP(CHRISTMANN JOHN J)	8/23/2019	8/22/2019
594	4	APACHE CORP(RAGAUSS PETER A)	8/23/2019	8/22/2019
595	4	APACHE CORP(RABUN DANIEL WAYNE)	8/23/2019	8/22/2019
596	4	APACHE CORP(NELSON AMY H)	8/23/2019	8/22/2019
597	4	APACHE CORP(MONTGOMERY WILLIAM C)	8/23/2019	8/22/2019
598	4	APACHE CORP(LOWE JOHN E)	8/23/2019	8/22/2019
599	4	APACHE CORP(JOYCE RENE R)	8/23/2019	8/22/2019
600	4	APACHE CORP(JOUNG CHANSOO)	8/23/2019	8/22/2019
601	4	APACHE CORP(ELLIS JULIET S)	8/23/2019	8/22/2019
602	4	APACHE CORP(BAY ANNELL R)	8/23/2019	8/22/2019
603	4	APACHE CORP(RICOTTA DOMINIC)	9/16/2019	9/14/2019
604	4	APACHE CORP(RAGAUSS PETER A)	10/1/2019	9/30/2019
605	4	APACHE CORP(RABUN DANIEL WAYNE)	10/1/2019	9/30/2019
606	4	APACHE CORP(NELSON AMY H)	10/1/2019	9/30/2019
607	4	APACHE CORP(MONTGOMERY WILLIAM C)	10/1/2019	9/30/2019
608	4	APACHE CORP(LOWE JOHN E)	10/1/2019	9/30/2019
609	4	APACHE CORP(JOYCE RENE R)	10/1/2019	9/30/2019
610	4	APACHE CORP(JOUNG CHANSOO)	10/1/2019	9/30/2019
611	4	APACHE CORP(ELLIS JULIET S)	10/1/2019	9/30/2019
612	4	APACHE CORP(BAY ANNELL R)	10/1/2019	9/30/2019
613	4	APACHE CORP(RICOTTA DOMINIC)	10/2/2019	10/1/2019
614	4	APACHE CORP(LANNIE P ANTHONY)	10/2/2019	10/1/2019
615	10-Q	APACHE CORP	10/31/2019	9/30/2019
616	8-K	APACHE CORP	10/31/2019	10/30/2019
617	4	APACHE CORP(SULLIVAN TIMOTHY J)	11/25/2019	11/22/2019
618	4	APACHE CORP(HOYT REBECCA A)	11/25/2019	11/22/2019
619	4	APACHE CORP(CHRISTMANN JOHN J)	11/25/2019	11/22/2019
620	4	APACHE CORP(RAGAUSS PETER A)	11/25/2019	11/22/2019
621	4	APACHE CORP(RABUN DANIEL WAYNE)	11/25/2019	11/22/2019
622	4	APACHE CORP(NELSON AMY H)	11/25/2019	11/22/2019
623	4	APACHE CORP(MONTGOMERY WILLIAM C)	11/25/2019	11/22/2019
624	4	APACHE CORP(LOWE JOHN E)	11/25/2019	11/22/2019
625	4	APACHE CORP(JOYCE RENE R)	11/25/2019	11/22/2019
626	4	APACHE CORP(JOUNG CHANSOO)	11/25/2019	11/22/2019
627	4	APACHE CORP(ELLIS JULIET S)	11/25/2019	11/22/2019
628	4	APACHE CORP(BAY ANNELL R)	11/25/2019	11/22/2019
629	8-K	APACHE CORP	12/10/2019	12/4/2019
630	4	APACHE CORP(RAGAUSS PETER A)	1/2/2020	12/31/2019
631	4	APACHE CORP(RABUN DANIEL WAYNE)	1/2/2020	12/31/2019
632	4	APACHE CORP(NELSON AMY H)	1/2/2020	12/31/2019
633	4	APACHE CORP(MONTGOMERY WILLIAM C)	1/2/2020	12/31/2019
634	4	APACHE CORP(LOWE JOHN E)	1/2/2020	12/31/2019
635	4	APACHE CORP(JOYCE RENE R)	1/2/2020	12/31/2019
636	4	APACHE CORP(JOUNG CHANSOO)	1/2/2020	12/31/2019
637	4	APACHE CORP(ELLIS JULIET S)	1/2/2020	12/31/2019

Exhibit 6**Apache Corporation****List of SEC Filings**Source: Edgar Pro (<http://pro.edgar-online.com/>)

Count	Form Type	Company (Filer)	Received	Period
638	4	APACHE CORP(BAY ANNELL R)	1/2/2020	12/31/2019
639	4	APACHE CORP(RICOTTA DOMINIC)	1/3/2020	1/3/2020
640	4	APACHE CORP(RINEY STEPHEN J)	1/3/2020	1/3/2020
641	4	APACHE CORP(PURSELL DAVID A)	1/3/2020	1/3/2020
642	4	APACHE CORP(LANNIE P ANTHONY)	1/3/2020	1/3/2020
643	4	APACHE CORP(HOYT REBECCA A)	1/3/2020	1/3/2020
644	4	APACHE CORP(CHRISTMANN JOHN J)	1/3/2020	1/3/2020
645	4	APACHE CORP(BRETCHES D. CLAY)	1/3/2020	1/3/2020
646	4	APACHE CORP(RINEY STEPHEN J)	1/3/2020	1/1/2020
647	4	APACHE CORP(LANNIE P ANTHONY)	1/3/2020	1/1/2020
648	4	APACHE CORP(CHRISTMANN JOHN J)	1/3/2020	1/1/2020
649	4	APACHE CORP(RICOTTA DOMINIC)	1/3/2020	1/1/2020
650	4	APACHE CORP(HOYT REBECCA A)	1/3/2020	1/1/2020
651	4	APACHE CORP(RINEY STEPHEN J)	1/7/2020	1/5/2020
652	4	APACHE CORP(RICOTTA DOMINIC)	1/7/2020	1/5/2020
653	4	APACHE CORP(LANNIE P ANTHONY)	1/7/2020	1/5/2020
654	4	APACHE CORP(HOYT REBECCA A)	1/7/2020	1/5/2020
655	4	APACHE CORP(CHRISTMANN JOHN J)	1/7/2020	1/5/2020
656	3	APACHE CORP(BRETCHES D. CLAY)	1/9/2020	1/1/2020
657	4	APACHE CORP(RINEY STEPHEN J)	1/21/2020	1/16/2020
658	4	APACHE CORP(RICOTTA DOMINIC)	1/21/2020	1/16/2020
659	4	APACHE CORP(LANNIE P ANTHONY)	1/21/2020	1/16/2020
660	4	APACHE CORP(HOYT REBECCA A)	1/21/2020	1/16/2020
661	4	APACHE CORP(CHRISTMANN JOHN J)	1/21/2020	1/16/2020
662	4	APACHE CORP(RINEY STEPHEN J)	1/27/2020	1/23/2020
663	4	APACHE CORP(RICOTTA DOMINIC)	1/27/2020	1/23/2020
664	4	APACHE CORP(LANNIE P ANTHONY)	1/27/2020	1/23/2020
665	4	APACHE CORP(HOYT REBECCA A)	1/27/2020	1/23/2020
666	4	APACHE CORP(CHRISTMANN JOHN J)	1/27/2020	1/23/2020
667	4	APACHE CORP(BRETCHES D. CLAY)	2/4/2020	2/1/2020
668	4	APACHE CORP(RINEY STEPHEN J)	2/4/2020	2/1/2020
669	4	APACHE CORP(RICOTTA DOMINIC)	2/4/2020	2/1/2020
670	4	APACHE CORP(PURSELL DAVID A)	2/4/2020	2/1/2020
671	4	APACHE CORP(LANNIE P ANTHONY)	2/4/2020	2/1/2020
672	4	APACHE CORP(HOYT REBECCA A)	2/4/2020	2/1/2020
673	4	APACHE CORP(CHRISTMANN JOHN J)	2/4/2020	2/1/2020
674	SC 13G/A	APACHE CORP(BLACKROCK INC.)	2/5/2020	
675	SC 13G/A	APACHE CORP(VANGUARD GROUP INC)	2/12/2020	
676	SC 13G/A	APACHE CORP(DAVIS SELECTED ADVISERS)	2/13/2020	
677	SC 13G	APACHE CORP(STATE STREET CORP)	2/13/2020	
678	SC 13G/A	APACHE CORP(DODGE & COX)	2/13/2020	
679	SC 13G/A	APACHE CORP(HARRIS ASSOCIATES L P)	2/14/2020	
680	4	APACHE CORP(RINEY STEPHEN J)	2/20/2020	2/18/2020
681	4	APACHE CORP(CHRISTMANN JOHN J)	2/25/2020	2/21/2020
682	4	APACHE CORP(HOYT REBECCA A)	2/25/2020	2/21/2020
683	4	APACHE CORP(RAGAUSS PETER A)	2/25/2020	2/21/2020
684	4	APACHE CORP(RABUN DANIEL WAYNE)	2/25/2020	2/21/2020
685	4	APACHE CORP(NELSON AMY H)	2/25/2020	2/21/2020
686	4	APACHE CORP(MONTGOMERY WILLIAM C)	2/25/2020	2/21/2020

Exhibit 6**Apache Corporation****List of SEC Filings**Source: Edgar Pro (<http://pro.edgar-online.com/>)

Count	Form Type	Company (Filer)	Received	Period
687	4	APACHE CORP(LOWE JOHN E)	2/25/2020	2/21/2020
688	4	APACHE CORP(JOYCE RENE R)	2/25/2020	2/21/2020
689	4	APACHE CORP(JOUNG CHANSOO)	2/25/2020	2/21/2020
690	4	APACHE CORP(ELLIS JULIET S)	2/25/2020	2/21/2020
691	4	APACHE CORP(BAY ANNELL R)	2/25/2020	2/21/2020
692	8-K	APACHE CORP	2/27/2020	2/26/2020
693	10-K	APACHE CORP	2/28/2020	12/31/2019
694	8-K	APACHE CORP	3/4/2020	3/4/2020
695	4	APACHE CORP(PURSELL DAVID A)	3/16/2020	3/14/2020
696	TA-2	APACHE CORP /TA	3/27/2020	12/31/2019

Exhibit 7**Apache Corporation****Market Maker Activity from 9/2016 to 3/2020**

Source: Bloomberg (APA US Equity <GO>, BAS <GO>)

Number	Code	Market Maker	Volume
1	MSCO	MORGAN STANLEY & CO., INCORPOR	150,009,612
2	LEHM	BARCLAYS CAPITAL INC.	73,002,180
3	UBSS	UBS SECURITIES LLC.	56,784,430
4	INCA	INSTINET CORPORATION	49,597,235
5	TRCM	TRC MARKETS LLC	45,724,697
6	TRBT	TRADEBOT SYSTEMS, INC.	40,308,316
7	FQLS	QUANTLAB SECURITIES LP	38,069,566
8	GSCO	GOLDMAN SACHS	27,350,888
9	JPMS	J.P. MORGAN SECURITIES INC.	18,700,283
10	DBAB	DEUTSCHE BANK SECURITIES INC.	17,872,211
11	IEQY	CITADEL SECURITIES LLC	16,014,874
12	JMPT	JUMP TRADING, LLC	15,082,814
13	GTSZ	GTS SECURITIES LLC	11,928,751
14	TSSM	TWO SIGMA SECURITIES	11,348,531
15	SBSH	CITIGROUP GLOBAL MARKETS INC.	10,800,432
16	NITE	VIRTU AMERICAS LLC	7,658,314
17	NFSC	NATIONAL FINANCIAL SERVICES LL	5,641,137
18	BERN	SANFORD C. BERNSTEIN AND CO. I	5,505,138
19	IBKR	INTERACTIVE BROKERS LLC	4,600,839
20	OHOS	TWO SIGMA SECURITIES, LLC	4,347,012
21	GSLT	GOLDMAN SACHS & CO. LLC	4,294,498
22	LIME	LIME BROKERAGE LLC	3,762,068
23	FRET	FOX RIVER EXECUTION TEHNOLOGY, LLC	3,688,988
24	CPEM	CLEARPOOL EXECUTION SERVICES, LLC	3,649,301
25	GSCS	GOLDMAN, SACHS & CO.	3,379,027
26	ETDX	ELECTRONIC TRANSACTION CLEARING, INC.	3,328,792
27	VALR		3,053,095
28	JEFF	JEFFERIES & COMPANY, INC.	2,948,814
29	INJX	INSTINET, LLC	2,773,680
30	ITGI	ITG INC.	2,341,973
31	WCHV	WELLS FARGO SECURITIES, LLC	2,255,388
32	ETBE	ELECTRONIC TRANSACTION CLEARING, INC.	2,051,675
33	SSIC	SCOTTRADE, INC.	2,006,373
34	LSCI	LEK SECURITIES CORPORATION	1,852,705
35	VALX	VIRTU AMERICAS	1,840,927
36	ETEJ	ELECTRONIC TRANSACTION CLEARING, INC.	1,616,966
37	ETRS	E*TRADE CLEARING LLC	1,525,339
38	LIWW	LIME BROKERAGE LLC	1,472,509
39	GEBB	GLOBAL EXECUTION BROKERS, LP	1,367,735
40	DUST		1,255,375
41	BNPX	BNP PARIBAS SECURITIES CORP.	1,243,504
42	HSBC	HSBC SECURITIES (USA) INC.	1,146,854
43	FOXB		1,013,944
44	MLZC	ERRILL LYNCH, PIERCE, FENNER & SMITH INCORPORATED	935,749
45	WBPX	WHITE BAY PT LLC	874,250
46	DBUL	DEUTSCHE BANK SECURITIES INC.	836,594
47	WEDB	WEDBUSH MORGAN SECURITIES INC.	813,245
48	BKMM	BNY MELLON CAPITAL MARKETS, LLC	798,192

Exhibit 7**Apache Corporation****Market Maker Activity from 9/2016 to 3/2020**

Source: Bloomberg (APA US Equity <GO>, BAS <GO>)

Number	Code	Market Maker	Volume
49	QLBR		745,163
50	WEXM	WOLVERINE EXECUTION SERVICES, LLC	723,192
51	DCHF	DART EXECUTIONS, LLC	688,477
52	NQRB	BRUT, LLC	677,280
53	ALFA	ALFA CAPITAL MARKETS (USA) INC	642,218
54	LIWA	LIME BROKERAGE LLC	640,095
55	TMBR	TIMBER HILL LLC	529,503
56	SPDR	SPEEDROUTE LLC	515,480
57	CTLR	CUTLER GROUP, LP	472,006
58	WEXX	WOLVERINE EXECUTION SERVICES,	433,523
59	NITP	VIRTU AMERICAS LLC	428,914
60	CODA		371,708
61	BAYS	BAYES CAPITAL LLC	311,729
62	CHAS	CHARLES SCHWAB AND CO. INC.	307,976
63	BMOC	BMO CAPITAL MARKETS	254,373
64	CPEX	CLEARPOOL EXECUTION SERVICES	231,189
65	RHOX	XR SECURITIES LLC	213,565
66	BAYT	BAYPOINT TRADING LLC	212,677
67	CTDL	CITADEL DERIVATIVES GROUP LLC	207,454
68	PIPR	PIPER JAFFRAY & CO.	183,219
69	DEGS	DART EXECUTIONS, LLC	151,741
70	LIWE	LIME BROKERAGE LLC	151,061
71	SPHN	STEPHENS INC.	149,025
72	XCAP	XAMBALA CAPITAL, LLC	132,232
73	PDQM	PDQ ATS. INC.	130,980
74	WSEA	WOLVERINE SECURITIES	125,018
75	DFIN	ELECTRONIC BROKERAGE SYSTEMS, LLC	120,600
76	JRCO	JOHNSON RICE AND CO.	117,843
77	STFL	STIFEL NICOLAUS	112,837
78	FCCP	FIRST CLEARING, LLC	100,978
79	RHCO	SUNTRUST CAPITAL MARKETS, INC.	100,927
80	GLPX	ACS EXECUTION SERVICES, LLC	97,652
81	CPET	CLEARPOOL EXECUTION SERVICES, LLC	95,576
82	CANT	CANTOR FITZGERALD & CO.	86,909
83	PICT	PICTET OVERSEAS INC.	82,091
84	BETC	BAYES CAPITAL LLC	73,650
85	ETBA	ELECTRONIC TRANSACTION CLEARING, INC.	70,738
86	EGAW	BATS TRADING, INC.	54,491
87	SJLS	SJ LEVINSON LLC	52,931
88	SAGW		50,164
89	ETCC	ELECTRONIC TRANSACTION CLEARING, INC.	49,852
90	JNST		48,761
91	VERT	THE VERTICAL GROUP, INC.	44,103
92	BTIG	BTIG, LLC	43,837
93	FILL	TRADESTATION SECURITIES, INC.	42,240
94	HAPX	HAP TRADING, LLC	38,752
95	VNDS	VANDHAM SECURITIES CORP	37,897
96	WABR	WALL STREET ACCESS	36,280
97	DRWK		35,946

Exhibit 7**Apache Corporation****Market Maker Activity from 9/2016 to 3/2020**

Source: Bloomberg (APA US Equity <GO>, BAS <GO>)

Number	Code	Market Maker	Volume
98	XPQR	JUMP TRADING	34,845
99	COWN	COWEN & CO., LLC	34,655
100	BARD	ROBERT W. BAIRD & CO. INCORPOR	32,862
101	SAGL	SAGETRADER, LLC	31,440
102	BZYD	GOLDMAN SACHS EXECUTION & CLEARING, L.P.	29,884
103	VNDM	VANDHAM SECURITIES CORP.	29,048
104	CLSA	CLSA AMERICAS, LLC	23,908
105	ARXS	ARXIS SECURITIES LLC	23,040
106	KING	C. L. KING & ASSOCIATES, INC.	22,701
107	ATMC	COWEN CAPITAL LLC	20,184
108	JTKS		20,135
109	ETBT	ELECTRONIC TRANSACTION CLEARING, INC.	20,008
110	DADA	D.A. DAVIDSON AND CO.	17,154
111	WBLR	WILLIAM BLAIR & COMPANY L.L.C.	16,330
112	JONE	JONES AND ASSOCIATES INC.	16,231
113	CTDN	CITADEL SECURITIES LLC	15,531
114	LAMP	LAMPOST CAPITAL LLC	14,834
115	SAGC	SAGETRADER, LLC	14,317
116	FBRC	FRIEDMAN, BILLINGS, RAMSEY & C	14,309
117	LTCO	LADENBURG, THALMANN & CO. INC.	12,916
118	PATH	BENJAMIN & JEROLD BROKERAGE I, LLC	10,745
119	MZHO	MIZUHO SECURITIES USA INC.	10,597
120	PERT	PERSHING TRADING COMPANY L.P.	10,150
121	LAFC	R. F. LAFFERTY & CO., INC.	10,000
122	PICK	PRIVATE INVESTORS CARTEL LTD.	9,771
123	ETDR	ELECTRONIC TRANSACTION CLEARING, INC.	9,654
124	HPPO	POTAMUS TRADING, LLC	8,855
125	MACQ	MACQUARIE CAPITAL (USA) INC.	8,050
126	NEFO	NEWEDGE USA, LLC	7,924
127	RAFF	RAFFENSPERGER, HUGHES & CO., INC.	7,371
128	MAXM	MAXIM GROUP, LLC	6,675
129	LIWK	LIME BROKERAGE LLC	6,557
130	NATL	NATIONAL SECURITIES CORP.	5,930
131	JUTA	JUMP TRADING, LLC	5,676
132	MUFG		5,080
133	SHMR	O'CONNOR & COMPANY LLC	4,453
134	LIWD	LIME BROKERAGE LLC	4,101
135	ETDM	ELECTRONIC TRANSACTION CLEARING, INC.	3,887
136	VIEW	VIEWTRADE SECURITIES, INC.	3,860
137	GTSW		3,700
138	BNCH	THE BENCHMARK COMPANY, LLC	3,613
139	GTSM	GTS SECURITIES LLC	3,537
140	ADAM	CANACCORD GENUITY INC	3,258
141	OTAA	OTA LLC	2,628
142	SPTD	STOCK USA INVESTMENTS	2,600
143	FQLB	QUANTLAB SECURITIES LP	2,294
144	TDSI	TD SECURITIES (USA) INC.	2,038
145	MICA	SPARTAN SECURITIES GROUP LTD	2,000
146	JOTA	JUMP TRADING	1,800

Exhibit 7**Apache Corporation****Market Maker Activity from 9/2016 to 3/2020**

Source: Bloomberg (APA US Equity <GO>, BAS <GO>)

Number	Code	Market Maker	Volume
147	OLDM	OLD MISSION CAPITAL, LLC	1,736
148	LIWM		1,597
149	MBTS	MB TRADING	1,375
150	NEED	NEEDHAM AND CO.	1,272
151	ETFO		1,219
152	EGXW	BATS TRADING, INC.	1,025
153	IMPC	IMPERIAL CAPITAL LLC	1,000
154	ONEL	WILLIAM O'NEIL & COMPANY	1,000
155	RILY	B. RILEY AND CO. INC.	1,000
156	WMBU	WFG INVESTMENT INC.	1,000
157	SPGS	SEA PORT GROUP SECURITIES LLC	900
158	FMCO	FIRST MANHATTAN CO	810
159	SPDL	SPEEDROUTE LLC	787
160	PBON	PREBON FINANCIAL PRODUCTS INC.	732
161	TTUC		683
162	LIWF		662
163	ETFA	ELECTRONIC TRANSACTION CLEARING, INC.	612
164	SCMC	SCOTIA CAPITAL (USA) INC.	400
165	STFC	STUART FRANKEL & CO. INCORPORA	400
166	LMGP	LIME BROKERAGE LLC	374
167	RGLD	REGAL DISCOUNT SECURITIES, INC	310
168	ETEI	ELECTRONIC TRANSACTION CLEARING, INC.	300
169	BZXL	VOLANT LIQUIDITY, LLC	200
170	MCBT	MOORS AND CABOT INC.	200
171	WNDR	WUNDERLICH SECURITIES, INC.	111
172	DRWJ	DRW SECURITIES, L.L.C.	24
173	OPCO	OPPENHEIMER & CO. INC.	13

Exhibit 8A**Apache Corporation****US Market Short Interest as a Percentage of Float**

Date	US Short Interest vs. Float Ratio
9/15/2016	3.90%
9/30/2016	4.00%
10/14/2016	3.90%
10/31/2016	3.90%
11/15/2016	4.00%
11/30/2016	3.80%
12/15/2016	3.80%
12/30/2016	3.60%
1/13/2017	3.60%
1/31/2017	3.60%
2/15/2017	3.70%
2/28/2017	3.70%
3/15/2017	3.80%
3/31/2017	3.80%
4/13/2017	3.80%
4/28/2017	3.80%
5/15/2017	3.90%
5/31/2017	4.00%
6/15/2017	4.00%
6/30/2017	4.00%
7/14/2017	4.00%
7/31/2017	3.90%
8/15/2017	4.00%
8/31/2017	4.10%
9/15/2017	4.10%
9/29/2017	4.00%
10/13/2017	4.00%
10/31/2017	3.90%
11/15/2017	4.00%
11/30/2017	4.00%
12/15/2017	3.90%
12/29/2017	3.70%
1/12/2018	3.80%
1/31/2018	3.80%
2/15/2018	3.80%
2/28/2018	3.80%
3/15/2018	3.90%
3/29/2018	3.90%
4/13/2018	3.90%
4/30/2018	3.90%
5/15/2018	3.90%
5/31/2018	3.90%
6/15/2018	4.00%
6/29/2018	3.90%
7/13/2018	3.90%
7/31/2018	3.80%
8/15/2018	3.80%

Exhibit 8A**Apache Corporation****US Market Short Interest as a Percentage of Float**

Date	US Short Interest vs. Float Ratio
8/31/2018	3.80%
9/14/2018	3.80%
9/28/2018	3.90%
10/15/2018	3.90%
10/31/2018	3.90%
11/15/2018	3.90%
11/30/2018	3.90%
12/14/2018	3.80%
12/31/2018	3.90%
1/15/2019	3.90%
1/31/2019	3.80%
2/15/2019	3.80%
2/28/2019	3.80%
3/15/2019	3.90%
3/29/2019	3.90%
4/15/2019	3.80%
4/30/2019	3.70%
5/15/2019	3.80%
5/31/2019	3.90%
6/14/2019	3.90%
6/28/2019	4.00%
7/15/2019	4.00%
7/31/2019	4.00%
8/15/2019	4.20%
8/30/2019	4.20%
9/13/2019	4.10%
9/30/2019	4.20%
10/15/2019	4.20%
10/31/2019	4.20%
11/15/2019	4.20%
11/29/2019	4.20%
12/13/2019	4.10%
12/31/2019	4.10%
1/15/2020	4.10%
1/31/2020	4.10%
2/14/2020	4.00%
2/28/2020	4.00%
3/13/2020	4.20%
Average:	3.92%

Source: Bloomberg Short Interest vs. Float Ratio for Total US Market (SFUSTOTL)
Index

Exhibit 8B**Apache Corporation****Short Interest**

Source: Bloomberg

Date	Short Interest	Change In Short Interest	Shares Outstanding	Float ¹	Short Interest as % of:	
					Shares Outstanding	Float
9/15/2016	22,174,543		379,423,000	378,214,279	5.84%	5.86%
9/30/2016	23,025,883	851,340	379,423,000	378,185,741	6.07%	6.09%
10/14/2016	22,714,127	(311,756)	379,423,000	378,185,741	5.99%	6.01%
10/31/2016	20,349,199	(2,364,928)	379,423,000	378,185,741	5.36%	5.38%
11/15/2016	23,537,854	3,188,655	379,429,000	378,191,741	6.20%	6.22%
11/30/2016	23,301,199	(236,655)	379,429,000	378,191,741	6.14%	6.16%
12/15/2016	21,433,531	(1,867,668)	379,429,000	378,191,741	5.65%	5.67%
12/30/2016	20,429,303	(1,004,228)	379,429,000	378,179,359	5.38%	5.40%
1/13/2017	20,128,205	(301,098)	379,429,000	378,179,359	5.30%	5.32%
1/31/2017	20,996,676	868,471	379,429,000	378,179,359	5.53%	5.55%
2/15/2017	18,553,004	(2,443,672)	379,429,000	378,179,359	4.89%	4.91%
2/28/2017	22,197,459	3,644,455	379,687,000	378,437,359	5.85%	5.87%
3/15/2017	23,591,578	1,394,119	379,687,000	378,437,359	6.21%	6.23%
3/31/2017	23,261,781	(329,797)	380,370,000	379,547,140	6.12%	6.13%
4/13/2017	24,767,371	1,505,590	380,370,000	379,547,140	6.51%	6.53%
4/28/2017	24,129,249	(638,122)	380,370,000	379,547,140	6.34%	6.36%
5/15/2017	25,232,610	1,103,361	380,437,000	379,614,140	6.63%	6.65%
5/31/2017	26,238,117	1,005,507	380,437,000	379,614,140	6.90%	6.91%
6/15/2017	27,386,639	1,148,522	380,437,000	379,614,140	7.20%	7.21%
6/30/2017	27,207,316	(179,323)	380,437,000	379,746,993	7.15%	7.16%
7/14/2017	28,162,330	955,014	380,437,000	379,746,993	7.40%	7.42%
7/31/2017	26,831,399	(1,330,931)	380,437,000	379,746,993	7.05%	7.07%
8/15/2017	24,229,795	(2,601,604)	380,934,000	380,243,993	6.36%	6.37%
8/31/2017	24,284,883	55,088	380,934,000	380,243,993	6.38%	6.39%
9/15/2017	24,767,781	482,898	380,934,000	380,243,993	6.50%	6.51%
9/29/2017	25,548,841	781,060	380,934,000	380,302,002	6.71%	6.72%
10/13/2017	27,819,665	2,270,824	380,934,000	380,302,002	7.30%	7.32%
10/31/2017	26,960,228	(859,437)	380,934,000	380,302,002	7.08%	7.09%
11/15/2017	25,900,275	(1,059,953)	380,943,000	380,311,002	6.80%	6.81%
11/30/2017	26,488,515	588,240	380,943,000	380,311,002	6.95%	6.96%
12/15/2017	27,328,425	839,910	380,943,000	380,311,002	7.17%	7.19%
12/29/2017	27,671,458	343,033	380,943,000	380,323,299	7.26%	7.28%
1/12/2018	27,668,689	(2,769)	380,943,000	380,323,299	7.26%	7.28%
1/31/2018	28,413,906	745,217	380,943,000	380,323,299	7.46%	7.47%
2/15/2018	28,059,850	(354,056)	380,943,000	380,323,299	7.37%	7.38%
2/28/2018	27,609,791	(450,059)	381,448,000	380,828,299	7.24%	7.25%
3/15/2018	28,808,091	1,198,300	381,448,000	380,828,299	7.55%	7.56%
3/29/2018	31,978,776	3,170,685	381,448,000	380,563,628	8.38%	8.40%
4/13/2018	31,553,520	(425,256)	382,147,000	381,262,628	8.26%	8.28%
4/30/2018	29,128,143	(2,425,377)	382,147,000	381,262,628	7.62%	7.64%
5/15/2018	29,630,294	502,151	382,154,000	381,269,628	7.75%	7.77%
5/31/2018	30,338,360	708,066	382,154,000	381,269,628	7.94%	7.96%
6/15/2018	30,922,944	584,584	382,154,000	381,269,628	8.09%	8.11%
6/29/2018	31,633,416	710,472	382,154,000	381,228,119	8.28%	8.30%
7/13/2018	31,351,246	(282,170)	382,154,000	381,228,119	8.20%	8.22%
7/31/2018	30,857,085	(494,161)	382,154,000	381,228,119	8.07%	8.09%
8/15/2018	30,172,352	(684,733)	382,486,000	381,560,119	7.89%	7.91%
8/31/2018	30,884,084	711,732	382,486,000	381,560,119	8.07%	8.09%
9/14/2018	30,254,610	(629,474)	382,486,000	381,560,119	7.91%	7.93%
9/28/2018	29,080,414	(1,174,196)	382,486,000	381,600,225	7.60%	7.62%
10/15/2018	27,604,798	(1,475,616)	382,486,000	381,600,225	7.22%	7.23%
10/31/2018	23,881,784	(3,723,014)	382,486,000	381,600,225	6.24%	6.26%
11/15/2018	27,212,911	3,331,127	379,544,000	378,658,225	7.17%	7.19%
11/30/2018	26,998,203	(214,708)	379,544,000	378,658,225	7.11%	7.13%
12/14/2018	27,463,815	465,612	379,544,000	378,658,225	7.24%	7.25%
12/31/2018	30,852,682	3,388,867	379,544,000	378,614,570	8.13%	8.15%
1/15/2019	31,901,763	1,049,081	379,544,000	378,614,570	8.41%	8.43%
1/31/2019	29,888,028	(2,013,735)	379,544,000	378,614,570	7.87%	7.89%
2/15/2019	25,928,705	(3,959,323)	379,544,000	378,614,570	6.83%	6.85%

Exhibit 8B**Apache Corporation****Short Interest**

Source: Bloomberg

Date	Short Interest	Change In Short Interest	Shares Outstanding	Float ¹	Short Interest as % of:	
					Shares Outstanding	Float
2/28/2019	24,817,418	(1,111,287)	379,544,000	378,614,570	6.54%	6.55%
3/15/2019	26,160,611	1,343,193	375,406,000	374,476,570	6.97%	6.99%
3/29/2019	27,023,390	862,779	375,406,000	374,271,106	7.20%	7.22%
4/15/2019	25,702,542	(1,320,848)	375,907,000	374,772,106	6.84%	6.86%
4/30/2019	24,120,409	(1,582,133)	375,907,000	374,772,106	6.42%	6.44%
5/15/2019	24,564,812	444,403	375,921,000	374,786,106	6.53%	6.55%
5/31/2019	25,404,697	839,885	375,921,000	374,786,106	6.76%	6.78%
6/14/2019	27,176,138	1,771,441	375,921,000	374,786,106	7.23%	7.25%
6/28/2019	26,331,663	(844,475)	375,921,000	374,846,383	7.00%	7.02%
7/15/2019	24,381,018	(1,950,645)	375,921,000	374,846,383	6.49%	6.50%
7/31/2019	24,098,869	(282,149)	375,921,000	374,846,383	6.41%	6.43%
8/15/2019	33,922,022	9,823,153	375,959,000	374,884,383	9.02%	9.05%
8/30/2019	33,825,859	(96,163)	375,959,000	374,884,383	9.00%	9.02%
9/13/2019	33,749,836	(76,023)	375,959,000	374,884,383	8.98%	9.00%
9/30/2019	23,612,183	(10,137,653)	375,959,000	374,997,600	6.28%	6.30%
10/15/2019	23,107,960	(504,223)	375,959,000	374,997,600	6.15%	6.16%
10/31/2019	23,786,964	679,004	376,036,000	375,074,600	6.33%	6.34%
11/15/2019	23,648,190	(138,774)	376,036,000	375,074,600	6.29%	6.30%
11/29/2019	22,202,094	(1,446,096)	376,036,000	375,074,600	5.90%	5.92%
12/13/2019	26,973,154	4,771,060	376,036,000	375,074,600	7.17%	7.19%
12/31/2019	27,510,938	537,784	376,036,000	375,065,503	7.32%	7.33%
1/15/2020	27,172,195	(338,743)	376,036,000	375,065,503	7.23%	7.24%
1/31/2020	20,773,179	(6,399,016)	376,036,000	375,065,503	5.52%	5.54%
2/14/2020	17,375,640	(3,397,539)	376,036,000	375,065,503	4.62%	4.63%
2/28/2020	18,183,488	807,848	377,316,000	376,345,503	4.82%	4.83%
3/13/2020	27,817,540	9,634,052	377,316,000	376,345,503	7.37%	7.39%
Average:	26,237,298	67,179	379,325,918	378,392,756	6.92%	6.93%
Minimum:	17,375,640	(10,137,653)	375,406,000	374,271,106	4.62%	4.63%
Maximum:	33,922,022	9,823,153	382,486,000	381,600,225	9.02%	9.05%

[1] Float is equal to shares outstanding less insider holdings

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018

Individual								
Ables (Grady L)	7,439	10,056	10,056	13,036	15,518	16,098	16,098	23,630
Bahorich (Michael S)	64,043	64,043	64,043	64,043	0	0	0	0
Bay (Annell R)	0	0	0	0	0	0	0	4,589
Bretches (D Clay)	0	0	0	0	0	0	0	0
Christmann (John J IV)	66,538	72,507	75,757	117,222	139,297	139,297	142,547	231,189
Eichler (Rodney J)	141,176	141,176	141,176	141,176	0	0	0	0
Ellis (Juliet S)	0	0	0	0	0	0	0	0
Farris (G Steven)	458,386	458,386	458,386	0	0	0	0	0
Frazier (A D Jr)	26,520	26,520	26,520	26,520	26,520	0	0	0
Gryder Rodney A	10,076	10,076	10,076	0	0	0	0	0
House (James L)	19,489	22,691	14,691	27,221	33,479	33,479	33,479	33,479
HOYT REBECCA A	11,891	12,755	12,755	17,887	21,639	22,537	22,537	32,270
Joung (Chansoo)	30,285	30,285	45,285	45,285	45,285	45,285	45,285	45,285
Joyce (Rene R)	0	0	0	0	10,000	10,000	10,000	10,000
Lannie (Paul Anthony)	44,734	49,225	49,225	59,640	68,023	68,023	48,509	87,955
Lawrence (George D)	40,808	40,808	40,808	41,477	41,452	41,452	41,452	42,966
Lowe (John E)	5,368	5,368	7,500	7,500	7,500	12,000	15,000	17,500
McArdle (Janine Marie J)	36,596	36,596	36,596	0	0	0	0	0
Merrick Aaron S G	12,086	12,086	12,086	0	0	0	0	0
Meyer (William Mark)	0	0	0	0	0	0	0	0
Montgomery (William C)	20,147	20,147	20,147	20,147	20,147	20,147	20,147	20,147
Nelson (Amy H)	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
O Brien Urban F	5,501	5,501	5,501	0	0	0	0	0
Olson (William Kregg)	55,780	59,939	59,939	69,388	77,140	77,140	77,140	136,141
Patton (Rodman D)	30,670	30,670	30,670	30,670	30,670	30,670	30,670	30,670
Pitman (Charles J)	39,923	39,923	39,923	39,923	39,923	41,023	41,023	41,023
Pursell (David A)	0	0	0	0	0	0	0	0
Ricotta (Dominic Jude)	0	0	0	2,816	5,103	5,103	6,070	11,812
Riney (Stephen J)	11,223	15,548	15,548	25,426	29,751	29,751	29,751	62,454
Sullivan (Timothy J)	10,506	13,417	13,417	32,416	37,493	37,493	37,493	50,762
TESLIK SARAH B	18,469	18,469	18,469	0	0	0	0	0
Voytovich (Thomas E)	38,567	38,567	38,567	38,567	38,567	0	0	0
Institution								
1 North Wealth Services, LLC	0	0	0	0	0	0	0	0
1832 Asset Management L P	210	0	0	159,500	159,500	161,775	0	0
1875 Finance SA	0	0	0	0	0	0	0	0
1919 Investment Counsel, LLC	29,137	25,562	24,274	23,044	13,284	12,684	6,859	6,459
1st Source Corporation Investment Advisors, Inc	6,699	6,356	5,472	4,548	4,272	0	0	0
361 Capital LLC NLE	99	980	0	0	0	0	0	735
3G Capital Management, Inc	0	500,000	0	0	0	0	0	0
9258 Wealth Management, LLC	0	0	0	0	0	0	0	0
A R T Advisors, LLC	57,222	0	0	0	0	0	114,467	136,967
a s r vermogensbeheer	0	0	0	0	0	0	0	0
AAA Investment Partners AG NLE	0	0	0	0	0	0	0	1,400
Abacus Planning Group, Inc	0	0	0	0	0	0	6,321	6,321
Aberdeen Asset Investments Limited	20,745	75,885	71,269	14,478	13,433	243,683	243,683	275,380
Aberdeen Asset Managers Ltd	337,029	335,693	332,418	301,973	308,884	64,048	65,129	63,201
Aberdeen Standard Investments (Edinburgh)	124,091	124,091	124,091	124,091	0	0	0	0
ABN AMRO Investment Solutions (AAIS)	516	3,475	5,041	2,374	2,785	2,814	2,991	3,185
abrdn Asia Limited	0	0	0	0	13,547	34,768	35,741	3,369

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020

Individual								
Ables (Grady L)	25,716	26,322	29,035	59,257	59,257	59,863	59,863	59,863
Bahorich (Michael S)	0	0	0	0	0	0	0	0
Bay (Annell R)	4,589	4,589	4,589	0	0	0	0	0
Bretches (D Clay)	0	0	0	0	0	0	0	5,206
Christmann (John J IV)	240,363	237,963	265,295	357,180	357,180	357,180	357,180	465,356
Eichler (Rodney J)	0	0	0	0	0	0	0	0
Ellis (Juliet S)	0	0	0	0	3,500	3,500	3,500	3,500
Farris (G Steven)	0	0	0	0	0	0	0	0
Frazier (A D Jr)	0	0	0	0	0	0	0	0
Gryder Rodney A	0	0	0	0	0	0	0	0
House (James L)	33,479	33,479	33,479	33,479	0	0	0	0
HOYT REBECCA A	35,621	30,448	33,139	43,978	43,978	44,916	44,916	59,100
Joung (Chansoo)	45,285	45,285	45,285	45,285	45,285	45,285	45,285	45,285
Joyce (Rene R)	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Lannie (Paul Anthony)	94,976	94,976	101,386	121,595	121,595	121,595	127,660	154,715
Lawrence (George D)	42,966	42,966	42,966	44,275	44,275	0	0	0
Lowe (John E)	20,000	20,000	20,000	20,000	25,000	30,000	30,000	30,000
McArdle (Janine Marie J)	0	0	0	0	0	0	0	0
Merrick Aaron S G	0	0	0	0	0	0	0	0
Meyer (William Mark)	0	0	0	0	2,919	2,919	2,919	4,919
Montgomery (William C)	20,147	20,147	20,147	20,147	20,147	20,147	20,147	20,147
Nelson (Amy H)	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
O Brien Urban F	0	0	0	0	0	0	0	0
Olson (William Kregg)	142,636	142,636	142,636	142,636	142,636	142,636	142,636	142,636
Patton (Rodman D)	30,670	0	0	0	0	0	0	0
Pitman (Charles J)	41,023	41,023	41,023	41,023	0	0	0	0
Pursell (David A)	0	0	0	0	2,806	2,806	2,806	10,185
Ricotta (Dominic Jude)	13,837	11,368	12,514	19,510	19,510	20,521	23,553	35,772
Riney (Stephen J)	66,973	66,973	66,973	97,532	97,532	97,532	97,532	141,684
Sullivan (Timothy J)	55,100	55,100	58,463	76,497	76,497	0	0	0
TESLIK SARAH B	0	0	0	0	0	0	0	0
Voytovich (Thomas E)	0	0	0	0	0	0	0	0
Institution								
1 North Wealth Services, LLC	0	0	0	142	142	142	142	142
1832 Asset Management L P	0	28,124	28,124	26,530	25,225	19,177	18,089	0
1875 Finance SA	0	0	0	0	4,875	4,875	4,875	4,875
1919 Investment Counsel, LLC	7,769	7,529	2,650	4,397	488	100	100	100
1st Source Corporation Investment Advisors, Inc	0	0	0	0	0	0	0	0
361 Capital LLC NLE	735	929	26,244	25,369	0	0	0	0
3G Capital Management, Inc	0	0	0	0	0	0	0	0
9258 Wealth Management, LLC	0	0	0	7,185	13,185	0	0	10,785
A R T Advisors, LLC	0	0	99,267	0	0	0	0	0
a s r vermogensbeheer	0	17,565	22,350	22,350	46,376	45,945	47,144	51,489
AAA Investment Partners AG NLE	0	0	0	0	0	0	0	0
Abacus Planning Group, Inc	6,321	6,321	0	6,321	0	0	0	0
Aberdeen Asset Investments Limited	113,243	77,033	71,754	74,766	71,739	69,798	67,842	67,646
Aberdeen Asset Managers Ltd	75,400	88,535	83,026	79,333	78,024	76,795	75,680	76,454
Aberdeen Standard Investments (Edinburgh)	0	0	7,969	35,628	35,628	36,231	36,097	36,583
ABN AMRO Investment Solutions (AAIS)	2,928	2,946	3,191	3,061	3,212	3,032	3,055	3,107
abrdn Asia Limited	936	2,003	2,003	4,859	2,610	1,761	1,761	1,761

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018

abrdn Capital Limited	0	0	0	0	0	0	0	0
Acacia Inversion S G I I C , S A U	0	0	0	0	0	5,205	5,202	0
Acadian Asset Management LLC	5,313	0	0	0	0	16,964	62,333	0
ACATIS Investment Kapitalverwaltungsgesellschaft GmbH	0	0	0	0	0	0	0	0
Accuro Asset Management AG	0	0	500	500	2,000	2,000	500	500
Achmea Investment Management B V	0	0	0	65,979	23,297	23,297	44,926	44,926
ACIES Asset Management AG	5,800	5,800	5,800	5,800	5,800	5,800	0	0
Acima Private Wealth LLC	0	0	0	0	0	0	0	0
AcomeA SGR S p A	30,580	30,580	19,200	21,700	39,500	43,800	46,800	54,800
Acorn Wealth Advisors, LLC	0	0	0	0	0	0	230	230
Acropolis Investment Management, L L C	8,380	8,135	6,280	6,125	0	0	0	0
Acrospire Investment Management LLC NLE	300	0	0	0	0	0	0	0
ACTIAM N V	70,710	79,676	76,703	71,667	72,174	88,191	84,759	94,326
Active Investment Advisors	7,409	7,409	3,761	3,761	3,761	3,761	3,761	3,761
Active Niche Funds S A	4,484	4,484	0	0	0	0	0	0
Adage Capital Management, L P	0	75,900	0	0	0	0	0	0
Adams Asset Advisors, LLC	33,850	33,850	32,238	32,238	32,238	32,238	12,450	12,450
Adams Funds Advisers, LLC	0	0	0	0	0	0	0	44,200
Addenda Capital, Inc	0	0	0	0	35,370	34,055	31,880	30,956
Adirondack Trust Company	65	0	0	0	0	0	0	0
Advantage Investment Management, LLC NLE	3,624	3,692	0	0	0	94	22,065	22,452
Advent Capital Management, LLC	0	10,000	0	0	0	0	0	0
Adviser Investments LLC	0	0	0	0	0	0	0	0
Advisor Consultant Network Inc	0	33,338	33,338	33,338	33,338	33,338	33,338	33,338
Advisor Group, Inc	11,248	22,624	25,846	21,555	53,522	56,485	58,635	55,884
Advisor Partners, LLC	0	0	4,134	0	0	0	0	0
AdvisorNet Wealth Management	0	0	0	0	0	0	876	82
Advisors Asset Management, Inc	4,388	4,148	3,988	2,358	1,331	1,317	1,289	953
Advisory Alpha, LLC	0	0	0	0	0	0	0	0
Advisory Services Network, LLC	490	548	548	1,575	1,476	1,594	1,548	1,433
Aegon Asset Management Ltd	0	0	0	0	0	0	0	0
Aegon Asset Management US	0	0	0	18,601	19,801	0	0	0
AEGON Investment Management B V	71,892	71,892	71,892	46,273	40,189	39,228	38,703	38,062
AFH Wealth Management	0	0	0	0	0	0	0	0
AGF Investments LLC	0	0	0	696	920	0	0	0
Agincourt Capital Management, L L C	0	0	0	0	0	0	0	0
AHL Partners LLP	0	0	0	6,036	4,189	10,294	0	6,311
AIFM Capital AB	4,119	4,003	4,003	0	0	0	0	0
Aigen Investment Management, LP	0	0	0	0	0	0	0	0
AIPM Azur International Portfolio Management AG	0	0	0	0	0	0	0	1,400
Airain Ltd	37,528	0	12,723	0	0	0	0	0
AJO, LP	5,966	5,487	5,807	2,714	0	0	0	0
Alambic Investment Management, L P	38,526	37,366	53,066	103,636	61,036	57,466	0	0
Alaska Retirement Management Board	0	0	0	2,640	0	15,310	39,610	51,480
Alberta Investment Management Corporation	23,100	0	9,300	44,600	0	32,800	169,400	183,000
Alera Investment Advisors, LLC	0	0	0	0	0	0	0	0
Alethea Capital Management, LLC	0	0	0	0	0	0	0	0
Aletti Gestielle SGR S p A NLE	22,500	12,500	13,000	35,200	73,500	90,825	0	0
Alexandria Capital, LLC	103	104	104	105	105	0	32,747	32,682
Alfred Berg Kapitalförvaltning AB	16,701	0	0	0	0	0	0	0
Algert Global LLC	0	0	0	0	0	0	0	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020

abrdn Capital Limited	0	0	0	0	1,236	1,236	1,236	0
Acacia Inversion S G I I C , S A U	0	0	0	0	0	0	0	0
Acadian Asset Management LLC	0	0	0	0	0	0	0	0
ACATIS Investment Kapitalverwaltungsgesellschaft GmbH	0	14,000	14,000	14,000	14,000	14,000	14,000	2,000
Accuro Asset Management AG	0	0	0	0	0	0	0	0
Achmea Investment Management B V	0	13,696	0	0	0	0	0	0
ACIES Asset Management AG	0	0	0	0	0	0	0	0
Acima Private Wealth LLC	0	0	0	0	0	9,818	6,546	6,046
AcomeA SGR S p A	44,500	44,500	44,500	44,500	44,500	44,500	14,000	14,000
Acorn Wealth Advisors, LLC	0	0	0	0	0	0	0	0
Acropolis Investment Management, L L C	0	0	0	0	0	0	0	0
Acrospire Investment Management LLC NLE	0	0	0	0	0	0	0	0
ACTIAM N V	94,141	101,375	107,983	143,708	136,892	228,122	157,799	94,858
Active Investment Advisors	3,761	3,761	0	0	0	0	0	0
Active Niche Funds S A	0	0	0	0	0	0	0	0
Adage Capital Management, L P	0	0	0	0	0	0	0	0
Adams Asset Advisors, LLC	12,450	12,450	12,450	12,450	12,450	0	0	0
Adams Funds Advisers, LLC	44,200	107,300	107,300	107,300	107,300	107,300	107,300	128,700
Addenda Capital, Inc	0	0	22,753	0	0	0	0	0
Adirondack Trust Company	0	0	0	0	0	0	0	0
Advantage Investment Management, LLC NLE	1,824	110	30	0	0	0	0	0
Advent Capital Management, LLC	0	0	0	0	0	0	0	0
Adviser Investments LLC	1,864	0	0	0	0	0	0	0
Advisor Consultant Network Inc	33,338	0	0	0	0	0	0	0
Advisor Group, Inc	53,410	56,050	22,295	20,206	19,724	18,448	18,221	18,221
Advisor Partners, LLC	6,301	8,239	0	8,365	7,197	16,129	15,406	70,810
AdvisorNet Wealth Management	59	60	96	96	61	62	62	63
Advisors Asset Management, Inc	1,262	1,248	1,208	1,208	1,193	1,188	285	281
Advisory Alpha, LLC	0	0	0	118	0	179	0	0
Advisory Services Network, LLC	13,084	724	850	850	1,241	1,241	1,368	872
Aegon Asset Management Ltd	0	0	0	0	0	4,156	0	0
Aegon Asset Management US	0	0	0	0	0	0	0	0
AEGON Investment Management B V	30,428	29,810	36,560	28,273	27,982	27,925	26,168	26,598
AFH Wealth Management	0	0	0	0	0	0	0	1,693
AGF Investments LLC	0	0	0	0	1,624	1,624	0	0
Agincourt Capital Management, L L C	0	0	0	0	1,354	1,354	1,354	1,146
AHL Partners LLP	47,106	50,158	34,546	0	0	0	0	131
AIFM Capital AB	0	0	0	0	0	0	0	0
Aigen Investment Management, LP	0	0	0	0	0	0	3,952	2,272
AIPM Azur International Portfolio Management AG	0	0	0	0	0	0	0	0
Airain Ltd	0	0	0	0	0	0	0	0
AJO, LP	0	0	0	0	0	0	0	0
Alambic Investment Management, L P	0	40	16,750	0	0	0	0	0
Alaska Retirement Management Board	84,750	85,063	99,158	104,071	110,392	258,900	232,909	246,419
Alberta Investment Management Corporation	154,700	0	0	0	0	0	0	32,400
Alera Investment Advisors, LLC	0	0	10	0	0	0	0	0
Alethea Capital Management, LLC	0	0	0	22,126	0	0	0	0
Aletti Gestielle SGR S p A NLE	0	0	0	0	0	0	0	0
Alexandria Capital, LLC	32,346	32,311	15,322	15,212	15,162	0	0	0
Alfred Berg Kapitalförvaltning AB	0	0	0	0	0	0	0	0
Algert Global LLC	0	0	31,426	0	0	0	0	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018

Allen & Company LLC	15,643	15,643	15,542	15,542	15,546	15,546	14,697	0
AllianceBernstein L P	668,608	671,226	652,704	640,476	629,924	631,501	652,883	2,026,868
Allianz Global Investors GmbH	0	602	9,575	5,091	0	0	0	0
Allianz Global Investors U S LLC	29,155	54,488	316,275	317,301	314,833	33,375	6,443	12,376
Allianz Investment Management, LLC	320,154	317,914	0	0	0	0	0	0
Allra Sverige AB	414	414	414	414	414	414	414	414
Allspring Global Investments, LLC	16,756	18,461	17,516	17,316	17,042	17,052	16,093	50,321
Allstate Investments LLC	0	0	0	13,270	0	0	0	0
Allworth Financial, L P	0	0	0	0	2,202	2,202	2,202	2,202
Ally Financial Inc	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Alpha Architect, LLC	0	0	173	0	0	0	0	0
Alphacrest Capital Management LLC	0	0	0	0	0	0	0	0
Alphamark Advisors, LLC	0	0	0	0	0	0	0	0
AlphaOne Capital Partners, LLC NLE	0	0	0	0	0	0	0	790
AlphaSimplex Group, LLC	7,409	7,409	3,761	3,761	3,761	3,761	3,761	5,344
Alpine Global Management, LLC	0	0	0	0	0	0	0	0
Alpine Woods Capital Investors, LLC	15,500	24,700	24,700	175,600	140,600	24,500	0	0
Alps Advisors, Inc	0	0	0	0	5,883	7,554	0	0
Altrinsic Global Advisors, LLC	1,165,532	741,128	644,184	611,392	500,905	499,831	547,485	413,874
Altshuler Shaham Ltd	0	0	0	0	0	0	0	0
Alyeska Investment Group, L P	0	0	0	0	1,298,731	0	0	0
Amalgamated Bank Institutional Asset Management & Custody	25,510	25,600	32,623	24,961	39,879	40,906	45,156	44,782
America First Investment Advisors, L L C	0	53	0	0	0	0	0	0
American Century Investment Management, Inc	597,539	579,005	378,226	688,541	577,042	586,793	556,361	561,525
American Financial Network Advisory Services, LLC	0	0	0	0	0	75	75	75
American National Bank & Trust	0	0	0	0	0	0	0	0
American National Insurance Co	59,090	59,090	59,090	59,090	59,090	59,090	0	0
American National Registered Investment Advisor, Inc	7,136	7,136	7,136	7,136	7,136	5,811	0	0
Ameritas Investment Partners, Inc	7,483	9,071	9,071	8,734	8,734	8,734	8,246	8,246
AMF Tjänstepension AB	0	0	75,200	0	0	0	0	0
AMG National Trust Bank	37,815	38,254	38,580	23,721	0	0	0	0
AMI Investment Management, Inc	29,041	29,041	0	0	0	0	0	0
Amica Mutual Insurance Company	34,575	34,575	39,416	39,416	39,416	0	0	0
Amica Retiree Medical Trust	2,246	2,246	2,547	2,547	2,547	0	0	0
AMP Capital Investors Limited	100,405	117,805	121,037	123,333	107,437	109,108	105,343	109,437
Ampega Investment GmbH	0	0	0	0	0	0	0	0
AmTrust Financial Services, Inc	0	0	3,529	0	0	0	0	0
Amundi (UK)	130,200	130,200	0	0	0	0	0	0
Amundi Asset Management US, Inc	0	48,621	1,426,167	0	421,945	303,371	0	0
Amundi Asset Management, SAS	804,078	186,963	405,335	332,906	297,421	312,773	343,322	236,624
Amundi Austria GmbH	0	0	0	0	0	5,000	5,000	5,000
Amundi Deutschland GmbH	64,572	62,333	64,647	85,668	82,916	102,416	110,170	107,441
Amundi Hong Kong Limited	0	0	3,000	3,000	2,800	2,800	4,800	4,800
AMUNDI IBERIA SGIC SA	0	0	0	0	0	0	0	0
Amundi Ireland Limited	324	0	0	0	0	0	0	0
Analytic Investors, LLC NLE	0	49,690	115,025	0	1,286	0	0	0
Anchor Capital Advisors LLC	1,191,323	828,646	749,394	754,464	737,432	707,933	731,176	1,025,030
Ancora Advisors, L L C	8,950	8,950	25,614	21,794	25,858	31,281	0	28,575
Ancora Family Wealth Advisors, LLC	34,829	29,641	29,641	29,641	29,641	29,641	29,641	29,641
Andra AP-Fonden	59,300	50,600	50,000	57,400	46,900	50,600	60,900	99,000
Anima SGR S p A	32,297	23,410	23,013	42,008	38,100	57,425	17,000	17,000

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020

Allen & Company LLC	0	0	0	0	0	0	0	0
AllianceBernstein L P	966,603	926,310	1,267,181	1,058,327	769,361	663,896	611,979	623,814
Allianz Global Investors GmbH	0	0	0	0	0	0	0	0
Allianz Global Investors U S LLC	11,914	11,207	24,597	28,772	23,282	25,820	24,888	24,557
Allianz Investment Management, LLC	0	0	0	0	0	0	0	0
Allra Sverige AB	0	0	0	0	0	0	0	0
Allspring Global Investments, LLC	44,235	43,286	49,978	41,909	41,250	34,299	13,499	31,704
Allstate Investments LLC	0	0	15,421	0	19,770	49,801	34,785	0
Allworth Financial, L P	2,202	2,202	2,202	2,202	0	0	0	0
Ally Financial Inc	50,000	50,000	50,000	50,000	50,000	50,000	50,000	0
Alpha Architect, LLC	0	0	0	0	0	0	0	0
Alphacrest Capital Management LLC	0	0	0	21,432	14,427	11,113	18,903	0
Alphamark Advisors, LLC	0	0	0	86	86	0	0	0
AlphaOne Capital Partners, LLC NLE	0	0	0	0	0	0	0	0
AlphaSimplex Group, LLC	1,583	5,078	0	6,801	0	0	0	0
Alpine Global Management, LLC	0	0	52,067	0	0	0	10,776	205,047
Alpine Woods Capital Investors, LLC	0	0	0	0	0	0	0	0
Alps Advisors, Inc	0	0	0	0	0	0	0	0
Altrius Global Advisors, LLC	431,757	343,979	432,669	435,119	414,994	473,526	0	0
Altshuler Shaham Ltd	0	0	0	0	0	12	0	0
Alyeska Investment Group, L P	0	0	0	0	0	941,376	0	0
Amalgamated Bank Institutional Asset Management & Custody	46,776	45,555	44,583	45,878	51,213	50,728	54,904	54,865
America First Investment Advisors, L L C	0	0	0	0	0	0	0	0
American Century Investment Management, Inc	500,327	459,587	555,119	555,119	415,090	404,739	409,628	97,904
American Financial Network Advisory Services, LLC	75	0	0	0	0	0	0	0
American National Bank & Trust	0	0	0	0	0	0	0	2,000
American National Insurance Co	0	0	0	0	0	0	0	0
American National Registered Investment Advisor, Inc	0	0	0	0	0	0	0	0
Ameritas Investment Partners, Inc	7,261	7,261	6,750	6,750	6,750	6,750	6,750	6,135
AMF Tjänstepension AB	0	0	0	0	0	0	0	0
AMG National Trust Bank	0	0	0	0	0	0	0	0
AMI Investment Management, Inc	0	0	0	0	0	0	0	0
Amica Mutual Insurance Company	0	0	0	0	0	10,663	0	0
Amica Retiree Medical Trust	0	0	0	0	0	1,685	0	0
AMP Capital Investors Limited	104,533	102,159	102,159	122,297	98,819	108,185	107,334	96,734
Ampega Investment GmbH	0	0	0	0	5,418	5,418	5,418	5,418
AmTrust Financial Services, Inc	0	0	0	0	0	0	0	0
Amundi (UK)	0	0	0	0	0	0	0	0
Amundi Asset Management US, Inc	0	0	0	0	0	0	0	0
Amundi Asset Management, SAS	266,848	279,769	294,565	273,587	292,534	345,968	398,484	459,399
Amundi Austria GmbH	5,000	5,000	5,000	5,000	0	0	0	0
Amundi Deutschland GmbH	313,792	107,441	107,441	107,441	107,441	107,441	0	0
Amundi Hong Kong Limited	0	0	0	0	0	0	0	0
AMUNDI IBERIA SGIC SA	0	0	0	0	4,648	4,642	13,067	11,428
Amundi Ireland Limited	0	0	0	0	0	0	0	0
Analytic Investors, LLC NLE	0	0	0	0	0	0	0	0
Anchor Capital Advisors LLC	925,300	643,176	0	0	0	0	0	0
Ancora Advisors, L L C	19,763	17,193	0	0	0	0	1,034	1,034
Ancora Family Wealth Advisors, LLC	29,641	0	0	0	0	0	0	0
Andra AP-Fonden	104,700	113,400	113,400	100,900	133,600	138,000	85,800	133,100
Anima SGR S p A	17,000	17,000	20,123	20,123	52,123	55,123	65,123	32,000

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018
Aperio Group, LLC	132,974	135,763	134,953	127,040	145,667	134,142	123,133	113,958
APG Asset Management N V	1,324,776	1,324,776	1,535,764	1,463,561	2,383,055	2,829,912	3,394,463	2,668,691
APICIL Asset Management SA	0	0	0	0	0	0	0	0
Applied Finance Advisors, LLC	0	0	16,684	15,732	0	0	0	0
Apriem Advisors	0	0	76	76	0	0	0	0
AQR Capital Management, LLC	8,718	46,341	58,315	55,444	10,336	12,070	14,782	21,667
Aramea Asset Management AG	500	500	500	500	500	500	500	0
Arbarin SICAV, S A	26,008	26,008	26,008	26,008	26,008	26,008	26,008	26,008
Arbiter Partners Capital Management, LLC	5,000	5,000	0	0	0	0	0	0
ARCA Fondi SGR S p A	0	0	0	0	0	0	2,097	2,097
Archford Capital Strategies, LLC	174	112	0	112	0	0	0	62
ArchPoint Investors, LLC	570	0	0	570	510	510	510	0
Ardevora Asset Management LLP	324,700	331,400	327,200	348,300	500,500	0	0	0
Arga Investment Management, LP	77,329	56,929	62,329	69,529	88,829	88,029	53,479	55,954
Argent Advisors Inc	0	0	0	0	0	0	0	0
Argent Trust Company	0	3,898	4,262	5,664	5,030	5,285	5,573	7,290
Argent Trust Company, N A NLE	34,892	34,892	34,892	34,892	34,892	0	0	0
Ariel Investments, LLC	77,018	77,018	77,018	87,418	106,476	106,420	106,376	136,492
Aries Wealth Management, LLC	0	0	0	0	0	0	5,069	0
Arizona State Retirement System	92,885	93,385	93,785	93,985	94,285	94,385	96,515	94,615
Arlington Partners, L L C	0	0	0	0	0	0	0	0
Arosa Capital Management LP	402,550	0	0	0	0	0	0	0
ArrowMark Colorado Holdings, LLC	0	0	0	0	0	0	0	0
Arrowstreet Capital, Limited Partnership	30,200	0	0	0	0	45,900	80,100	13,900
ARS Investment Partners LLC	0	49,195	79,635	0	0	0	0	0
Artisan Partners Limited Partnership	4,921,492	4,675,432	4,180,272	4,241,783	3,570,614	3,593,344	3,585,848	3,461,353
ARTS Asset Management GmbH	400	364	369	370	358	364	364	364
ARX Pangaia (Pty) Ltd	0	0	0	0	2,219	3,676	3,676	3,791
Asahi Life Asset Management Co., Ltd	0	0	0	0	0	0	0	0
Ascendant Advisors, LLC	402	372	330	330	330	336	306	357
Ashburton (Jersey) Ltd	0	0	0	0	0	25,200	25,200	0
Ashburton Fund Managers (Proprietary) Limited	0	0	0	0	0	0	1,500	0
Assenagon Asset Management S A	88,017	93,830	109,432	119,783	104,629	0	74,277	197,150
Asset Dedication, LLC	0	0	0	0	0	0	0	0
Asset Management Group of Bank of Hawaii	5,695	5,645	5,595	0	0	0	0	0
Asset Management One Co., Ltd	68,445	71,752	0	0	0	0	0	0
Asset Management One International Ltd	5,530	5,530	5,530	5,530	5,530	5,530	5,530	5,530
Asset Management One USA Inc	69,594	74,511	677,751	615,044	598,255	589,823	590,360	595,742
Asset Planning Services Ltd	500	0	0	0	0	0	0	0
Assetmark, Inc	1,253	1,323	1,249	1,226	1,084	1,070	1,098	952
Associated Investment Management, LLC	10,371	10,214	9,268	9,061	8,857	10,417	9,584	6,332
Assured Investment Management LLC	0	0	0	0	0	113,478	77,691	0
ATB Investment Management Inc	207,332	229,737	230,747	230,747	230,747	212,120	206,750	450,810
Athena Capital Advisors LLC	0	0	0	0	0	0	0	0
Atika Capital Management LLC	0	0	58,000	0	0	0	0	0
Atlas Capital Advisors LLC	0	0	0	0	0	0	0	0
Atom Investors LP	0	0	0	0	0	0	0	0
Atwood & Palmer Inc	0	0	0	0	0	0	0	600
Auriga Global Investors Sociedad de Valores, S A	0	0	0	0	0	0	0	0
Auxier Asset Management LLC	9,501	9,241	8,015	8,015	8,015	7,465	7,265	7,065
Avantis Investors	0	0	0	0	0	0	0	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020

Aperio Group, LLC	159,832	175,119	138,517	189,986	165,682	298,917	252,812	265,787
APG Asset Management N V	2,603,091	2,603,091	136,191	120,991	120,991	338,633	338,633	1,005,328
APICIL Asset Management SA	0	0	727	727	727	727	727	6,227
Applied Finance Advisors, LLC	0	0	0	0	0	0	0	0
Apriem Advisors	0	0	0	0	0	0	0	0
AQR Capital Management, LLC	163,704	25,763	15,970	17,905	154,059	20,860	72,392	127,972
Aramea Asset Management AG	0	0	0	0	0	0	0	0
Arbarin SICAV, S A	0	0	0	0	0	0	0	0
Arbiter Partners Capital Management, LLC	0	0	0	0	0	0	0	0
ARCA Fondi SGR S p A	19,880	20,135	39,671	19,814	37,914	29,057	10,952	10,952
Archford Capital Strategies, LLC	62	62	62	62	62	0	0	0
ArchPoint Investors, LLC	510	510	0	0	0	0	0	0
Ardevora Asset Management LLP	0	0	0	0	0	0	0	0
Arga Investment Management, LP	82,829	85,404	56,900	56,900	45,925	45,925	0	0
Argent Advisors Inc	0	0	0	0	0	0	27	0
Argent Trust Company	34,469	34,199	29,872	32,692	29,846	26,770	13,260	0
Argent Trust Company, N A NLE	0	0	0	0	0	0	0	0
Ariel Investments, LLC	136,492	136,456	133,255	127,811	132,011	131,980	150,068	226,670
Aries Wealth Management, LLC	5,069	5,069	0	0	0	0	0	0
Arizona State Retirement System	234,499	232,783	219,594	229,672	233,701	233,543	225,104	179,817
Arlington Partners, L L C	0	2,000	2,000	2,000	0	0	0	0
Arosa Capital Management LP	0	0	0	0	0	0	133,610	0
ArrowMark Colorado Holdings, LLC	0	0	0	0	0	0	0	183,231
Arrowstreet Capital, Limited Partnership	0	0	193,464	285,294	386,582	794,930	114,700	1,052,415
ARS Investment Partners LLC	0	0	0	0	0	0	0	0
Artisan Partners Limited Partnership	3,436,720	3,002,446	2,640,514	1,618,177	1,567,209	0	0	0
ARTS Asset Management GmbH	364	352	367	367	500	500	501	501
ARX Pangaia (Pty) Ltd	3,791	3,791	3,791	2,751	2,751	407	210	210
Asahi Life Asset Management Co , Ltd	0	0	0	0	11,770	7,960	0	0
Ascendant Advisors, LLC	357	285	257	257	257	257	257	257
Ashburton (Jersey) Ltd	0	0	0	0	0	0	0	0
Ashburton Fund Managers (Proprietary) Limited	0	0	475	475	615	615	615	615
Assenagon Asset Management S A	115,490	0	0	0	122,667	130,004	149,934	153,021
Asset Dedication, LLC	0	0	0	0	680	680	680	680
Asset Management Group of Bank of Hawaii	0	0	0	0	0	0	0	0
Asset Management One Co , Ltd	8,995	8,995	8,995	8,995	9,226	9,226	9,226	9,226
Asset Management One International Ltd	5,530	0	0	0	0	0	0	0
Asset Management One USA Inc	621,894	624,642	621,532	210,267	236,060	211,224	210,285	189,970
Asset Planning Services Ltd	0	0	0	0	0	0	0	0
Assetmark, Inc	861	705	467	581	584	584	584	0
Associated Investment Management, LLC	6,469	6,349	0	0	0	0	0	0
Assured Investment Management LLC	539	1,243	0	2,222	0	0	0	0
ATB Investment Management Inc	459,920	457,590	295,890	295,890	0	0	0	0
Athena Capital Advisors LLC	0	0	505	0	0	0	0	0
Atika Capital Management LLC	0	0	0	0	0	0	0	0
Atlas Capital Advisors LLC	0	0	0	0	0	0	0	33,299
Atom Investors LP	0	0	0	10,284	0	0	0	0
Atwood & Palmer Inc	600	600	600	600	600	600	600	600
Auriga Global Investors Sociedad de Valores, S A	604	604	604	604	367	367	0	0
Auxier Asset Management LLC	7,015	7,015	0	0	0	0	0	0
Avantis Investors	0	0	0	0	0	0	4,018	83,278

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018

Avestar Capital, LLC	0	0	0	0	0	0	692	708
Aviva Investors Global Services Limited	225,533	230,716	246,608	233,637	237,547	240,747	210,894	194,426
Avondale Asset Management NLE	20	20	20	20	20	20	20	0
AXA Investment Managers Deutschland GmbH	190	190	190	0	0	0	0	0
AXA Investment Managers Paris	0	0	0	0	0	0	0	0
AXA Investment Managers UK Ltd	6,939	15,993	21,986	26,766	29,635	30,470	0	0
AXA Rosenberg Investment Management LLC	8,600	2,400	6,200	3,600	2,400	0	0	1,700
Axiom Investment Management, LLC	0	0	0	0	0	0	0	0
Axxion S A	0	0	0	0	0	0	0	0
Azimut Capital Management Sgr SpA	0	0	0	0	0	0	0	0
Azimut Investments S A	0	0	6,500	6,500	6,500	6,500	6,500	6,500
B & T Capital Management DBA Alpha Capital Management	0	3,208	3,209	0	0	0	0	0
B&C Financial Advisors	22,600	23,230	23,015	23,740	24,570	27,130	23,325	25,305
B Riley Wealth Management, Inc	0	0	0	0	0	0	0	0
Baillie Gifford & Co	8,502,324	8,246,338	8,060,349	7,868,500	12,429,930	12,294,916	12,164,940	13,897,323
Baird Investment Management	10,997	10,917	14,167	9,190	8,809	10,285	24,972	24,848
Baker Avenue Asset Management, LP	0	7,640	8,370	0	0	0	0	0
Baldwin Brothers, LLC	1,445	1,300	1,300	1,300	1,300	1,300	1,125	1,125
Baldwin Investment Management, LLC	8,153	8,553	15,328	15,428	14,768	9,293	5,768	0
Balentine LLC	0	0	0	613	613	613	613	0
Baloise Asset Management	1,063	1,063	1,065	1,063	1,064	1,067	1,067	1,067
Balyasny Asset Management LP	6,225	0	13,306	31,221	21,877	0	34,806	17,626
Banca Finnat Euramerica S p A	4,000	0	0	0	0	0	0	0
Banco Bilbao Vizcaya Argentaria S A (Asset Management)	0	0	0	0	0	0	0	0
Bank Dierickx Leys N V	0	0	0	0	0	0	0	0
Bank Julius Bär & Co AG	5,868	5,868	0	319,853	319,853	553,679	564,718	585,448
Bank of Nova Scotia	0	0	0	228,166	564,408	559,872	441,887	38,476
Bank of Oklahoma, N A	29,725	31,934	29,104	28,929	29,485	28,800	23,105	22,067
Bank of the Ozarks	0	3,452	0	0	0	0	0	0
Bank of the West	10,209	8,178	6,182	5,980	5,478	0	0	0
Bankia Fondos, S G I I C , S A NLE	7,790	7,790	7,790	12,789	10,288	10,294	10,287	2,500
Bankinter Gestión de Activos, SGIIC S A	1,090	589	589	589	589	589	589	589
Banque Cantonale Vaudoise	0	6,582	6,582	8,087	8,087	8,087	8,087	8,087
Banque Degroof Petercam Luxembourg S A	7,610	6,665	4,530	4,530	4,530	4,530	4,795	3,955
Banque Degroof Petercam N V	35,000	28,000	7,000	7,000	9,000	9,000	0	0
Bar Harbor Wealth Management	7,608	8,169	8,029	6,187	5,140	5,854	8,253	5,481
Barclays Bank (Suisse) S A	2,046	540	540	0	0	0	0	0
Barclays Bank PLC	0	0	0	503	154,876	190,874	306,672	303,553
Barclays Bank PLC Hong Kong	1,200	1,200	1,200	1,200	2,200	2,200	2,200	2,200
Barclays Capital	47,274	217,959	204,977	168,252	26,558	908	55,028	263,678
Barclays Capital Inc	13,169	8,593	44,892	62,455	27	285,497	15,650	78,383
Barclays Wealth	0	0	0	0	0	0	0	0
Barclays Wealth Managers España, S A , S G I I C	25,220	25,220	0	0	0	0	0	0
Barings LLC	55,547	25,147	10,847	10,847	0	0	547	547
Barnett & Company Inc	125	125	500	3,500	6,350	7,350	7,500	7,500
Barometer Capital Management Inc	0	352,800	318,950	0	0	0	0	0
Barrett Asset Management, LLC	150	150	150	150	150	150	150	0
Barrow, Hanley, Mewhinney & Strauss, LLC	43,894	43,494	58,290	30,605	36,914	42,214	49,314	60,614
Bartlett & Company	950	950	805	1,170	1,170	1,270	1,890	1,490
Bay Colony Advisors	0	0	0	0	0	0	0	0
BB&T Investment Services, Inc	0	0	568	568	568	568	1,940	1,940

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020
Avestar Capital, LLC	708	718	806	806	806	0	0	0
Aviva Investors Global Services Limited	191,730	183,540	143,226	144,351	141,380	133,011	131,357	131,699
Avondale Asset Management NLE	0	0	0	0	0	0	0	0
AXA Investment Managers Deutschland GmbH	0	0	0	0	0	0	0	0
AXA Investment Managers Paris	0	0	32,500	32,500	17,000	0	0	0
AXA Investment Managers UK Ltd	0	0	0	0	0	256	256	256
AXA Rosenberg Investment Management LLC	6,500	1,500	232,900	87,200	90,400	103,900	27,200	0
Axiom Investment Management, LLC	0	0	8,461	0	0	0	0	0
Axxion S A	0	0	0	0	12,000	12,000	12,000	12,000
Azimut Capital Management Sgr SpA	0	0	0	0	0	0	8,700	7,700
Azimut Investments S A	6,500	6,500	0	0	0	0	0	0
B & T Capital Management DBA Alpha Capital Management	0	0	0	0	0	0	0	0
B&C Financial Advisors	26,455	27,055	25,410	31,970	37,455	51,070	36,095	0
B Riley Wealth Management, Inc	0	0	0	0	0	103	0	0
Baillie Gifford & Co	24,490,129	24,398,441	24,364,479	23,875,797	23,688,967	18,064,880	16,673,705	0
Baird Investment Management	9,864	8,219	0	0	0	0	0	0
Baker Avenue Asset Management, LP	0	0	0	0	0	0	0	0
Baldwin Brothers, LLC	1,125	1,125	851	851	851	851	396	396
Baldwin Investment Management, LLC	4,518	4,518	0	0	0	9,318	10,358	0
Balentine LLC	0	0	209	209	209	0	0	368
Baloise Asset Management	404	425	395	395	614	614	595	595
Balyasny Asset Management LP	0	0	33,721	0	0	915,718	0	2,310,118
Banca Finnat Euramerica S p A	0	0	0	0	0	0	0	0
Banco Bilbao Vizcaya Argentaria S A (Asset Management)	0	0	0	0	0	0	12,050	0
Bank Dierckx Leys N V	13,631	13,631	12,686	11,246	0	0	0	0
Bank Julius Bär & Co AG	476,764	431,364	309,622	309,622	309,622	306,022	306,022	19,911
Bank of Nova Scotia	31,574	67,337	71,352	61,200	71,714	9,766	57,520	93,069
Bank of Oklahoma, N A	24,095	23,218	22,762	20,954	26,862	26,425	21,138	14,010
Bank of the Ozarks	0	0	0	0	0	0	0	0
Bank of the West	0	0	0	0	0	0	0	0
Bankia Fondos, S G I I C , S A NLE	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
Bankinter Gestión de Activos, SGIIC S A	589	0	0	0	0	0	0	0
Banque Cantonale Vaudoise	8,087	8,087	8,087	8,087	0	0	10,100	10,100
Banque Degroof Petercam Luxembourg S A	3,355	3,355	3,355	3,355	3,355	3,355	3,355	3,355
Banque Degroof Petercam N V	0	0	0	0	0	0	0	0
Bar Harbor Wealth Management	5,406	4,341	0	0	0	0	0	0
Barclays Bank (Suisse) S A	0	0	0	0	0	0	0	0
Barclays Bank PLC	281,413	352,340	742,834	1,090,631	654,809	543,142	564,278	380,827
Barclays Bank PLC Hong Kong	2,200	2,200	2,200	2,200	0	0	0	0
Barclays Capital	1,195	2,648	36,487	40,013	31,887	16,950	47,096	27,130
Barclays Capital Inc	300	7,104	55,553	5,904	35,906	57,393	359,884	606,717
Barclays Wealth	0	0	0	0	0	0	10,155	10,166
Barclays Wealth Managers España, S A , S G I I C	0	0	0	0	0	0	0	0
Barings LLC	547	547	547	547	1,947	1,947	147	147
Barnett & Company Inc	8,500	14,900	14,500	13,900	13,700	13,200	7,450	5,450
Barometer Capital Management Inc	0	0	0	0	0	0	0	0
Barrett Asset Management, LLC	0	0	0	0	0	0	0	0
Barrow, Hanley, Mewhinney & Strauss, LLC	56,514	49,614	49,614	0	0	0	0	0
Bartlett & Company	1,290	890	890	890	890	1,390	1,390	640
Bay Colony Advisors	200	0	0	0	0	0	0	0
BB&T Investment Services, Inc	1,940	1,940	1,940	1,940	1,940	1,940	0	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018
BB&T Securities, LLC	22,584	20,484	22,232	22,224	28,779	32,266	22,346	32,696
BBGI Group S A	0	0	0	0	3,000	3,000	4,000	4,000
BBVA Asset Management, S A , S G I I C	6,885	6,839	8,027	14,513	12,030	12,861	9,972	8,186
BCM Advisors, LLC	0	0	105	0	0	0	0	0
BEA Union Investment Management Limited	0	0	0	0	0	0	0	0
Beauregard Capital Limited	2,000	2,000	0	0	0	0	0	0
Beck Capital Management, LLC	0	0	32,426	0	0	0	0	0
Bedel Financial Consulting, Inc	0	0	0	0	0	0	0	665
Beese Fulmer Private Wealth Management	6,010	5,893	5,893	5,993	6,016	5,866	5,149	0
Bel Air Investment Advisors, LLC	15	15	15	15	15	15	0	0
Bellevue Asset Management (Deutschland) GmbH	11,224	11,224	11,224	11,224	11,224	11,224	11,224	11,224
Bellevue Asset Management LLC	0	0	0	0	0	0	0	0
Bellwether Investment Group, LLC	3,355	3,355	3,355	0	0	0	0	0
Belpointe Asset Management LLC	0	0	0	0	0	21,560	19,818	8,449
Benjamin F. Edwards & Company, Inc	223	23	234	973	823	1,523	2,525	1,073
BerganKDV Wealth Management, LLC	0	0	0	0	0	0	0	0
Berkshire Asset Management, LLC	3,950	4,093	3,950	0	0	8,350	0	0
Berman Capital Advisors, LLC	0	0	0	0	0	0	0	0
Berner Kantonalbank AG	0	0	0	0	1,524	1,488	1,480	1,247
Bessemer Trust Company, N A (US)	2,200	2,200	88,084	88,084	89,335	139,105	150,614	165,008
BetaShares Capital Ltd	0	0	0	0	873	873	1,592	2,152
Bethmann Bank A G	350	0	0	0	0	0	0	0
BG Fund Management Luxembourg S A	2,959	0	0	0	11,000	11,000	0	0
BI Asset Management Fondsmæglerselskab A/S	0	0	0	0	0	0	0	0
Biechele Royce Advisors, Inc	0	0	0	0	0	0	10,544	10,317
Birch Hill Investment Advisors LLC	6,455	6,180	5,880	5,595	5,595	4,820	4,820	0
Bishop Street Capital Management Corp	0	0	0	0	0	0	0	0
BlackRock (Netherlands) B V	78,169	74,887	78,811	79,325	79,325	85,334	88,118	56,909
BlackRock (Singapore) Limited	31,553	5,473	3,533	4,411	3,776	6,220	6,220	3,413
BlackRock Advisors (UK) Limited	259,264	223,841	244,481	224,212	231,185	236,745	249,355	197,210
BlackRock Asset Management Canada Limited	256,096	249,454	261,008	259,499	272,881	271,920	263,464	277,962
BlackRock Asset Management Ireland Limited	999,411	1,022,142	1,114,123	1,099,792	1,157,289	1,207,728	1,229,719	1,236,268
BlackRock Asset Management North Asia Limited	0	0	0	0	0	0	0	0
BlackRock Financial Management, Inc	4,707,813	4,688,127	4,485,049	4,117,124	1,786,798	949,436	722,080	657,580
BlackRock Fund Advisors	0	0	0	0	0	0	29,793	28,993
BlackRock Institutional Trust Company, N A	16,486,411	16,213,139	16,573,744	16,855,352	18,650,045	19,324,235	19,639,175	19,782,048
BlackRock International Ltd	93,947	49,609	30,762	18,747	14,747	16,013	12,322	11,279
BlackRock Investment Management (Australia) Ltd	147,167	114,431	120,724	136,604	137,820	136,874	128,958	113,728
BlackRock Investment Management (UK) Ltd	2,545,157	2,458,437	2,556,803	2,413,339	1,971,918	1,736,113	1,788,588	1,913,003
BlackRock Investment Management, LLC	3,455,209	3,447,286	3,427,798	3,205,348	1,861,025	860,537	833,154	808,497
BlackRock Japan Co., Ltd	635,171	619,928	628,537	589,818	507,979	490,583	476,680	450,540
Blackstone Alternative Investment Advisors LLC	0	0	0	0	0	0	0	0
BLB&B Advisors, LLC	0	0	0	0	0	6,070	6,101	0
Blenheim Capital Management LLC NLE	1,800	0	0	0	0	0	0	0
Blue Bell Private Wealth Management, LLC	233	233	0	0	0	0	0	0
Blue Edge Capital, LLC	0	16,902	16,902	17,993	0	0	0	0
Blue Quay Investment Management Pty Ltd	0	0	0	0	0	0	0	0
BlueCrest Capital Management LLP	111,850	241,710	0	48,477	66,841	7,146	26,188	0
Bluefin Trading, LLC	4,104	0	0	4,900	35,923	38,104	0	0
Blume Capital Management, Inc	100	100	100	100	0	100	100	100
BMO Asset Management Inc	42,190	44,490	47,390	51,390	52,890	60,390	55,290	62,590

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020
BB&T Securities, LLC	42,447	48,749	23,274	32,206	36,654	34,349	22,794	26,839
BBGI Group S A	4,000	4,000	4,000	4,000	4,000	4,000	0	0
BBVA Asset Management, S A , S G I I C	1,099	1,096	1,785	1,443	1,456	3,961	3,991	4,201
BCM Advisors, LLC	0	0	0	0	0	0	0	0
BEA Union Investment Management Limited	0	0	0	0	0	0	0	50,400
Beauregard Capital Limited	0	0	0	0	0	0	0	0
Beck Capital Management, LLC	0	0	0	0	0	0	0	0
Bedel Financial Consulting, Inc	665	665	665	665	665	665	665	665
Beese Fulmer Private Wealth Management	4,849	4,849	0	0	0	0	0	0
Bel Air Investment Advisors, LLC	1,961	1,961	0	0	0	0	0	0
Bellevue Asset Management (Deutschland) GmbH	11,224	11,224	0	0	0	0	0	0
Bellevue Asset Management LLC	0	0	0	0	0	0	200	200
Bellwether Investment Group, LLC	0	0	0	0	0	0	0	0
Belpointe Asset Management LLC	7,130	7,605	10,539	8,859	8,839	18,535	18,305	0
Benjamin F. Edwards & Company, Inc	1,123	123	9,564	9,931	523	523	300	0
BerganKDV Wealth Management, LLC	0	0	0	0	0	0	19	19
Berkshire Asset Management, LLC	0	0	0	0	0	0	0	0
Berman Capital Advisors, LLC	0	0	0	145	255	701	627	813
Berner Kantonalbank AG	1,223	1,239	1,265	1,208	1,147	1,701	1,679	1,735
Bessemer Trust Company, N A (US)	165,008	154,299	154,035	149,697	76,562	72,140	70,856	2,038
BetaShares Capital Ltd	3,489	4,149	4,451	4,074	3,559	781	781	781
Bethmann Bank A G	0	0	0	0	0	0	0	0
BG Fund Management Luxembourg S A	0	0	0	0	0	0	0	0
BI Asset Management Fondsmæglerselskab A/S	0	0	0	6,877	12,151	0	0	6,877
Biechele Royce Advisors, Inc	10,371	10,243	9,989	9,735	9,037	8,972	8,762	0
Birch Hill Investment Advisors LLC	4,620	4,620	0	0	0	0	0	0
Bishop Street Capital Management Corp	0	9,342	1,604	4,942	0	0	0	0
BlackRock (Netherlands) B V	51,558	72,292	73,040	73,040	71,290	71,739	72,386	69,929
BlackRock (Singapore) Limited	13,969	13,969	16,205	16,205	16,205	14,648	14,648	15,590
BlackRock Advisors (UK) Limited	175,644	166,901	152,141	107,189	122,789	410,788	88,433	87,531
BlackRock Asset Management Canada Limited	300,805	308,267	368,833	352,295	349,808	356,782	341,182	353,898
BlackRock Asset Management Ireland Limited	1,372,132	1,439,723	1,540,693	1,445,855	1,352,476	1,428,282	1,457,995	1,509,169
BlackRock Asset Management North Asia Limited	0	0	0	4,719	4,719	4,719	4,170	3,037
BlackRock Financial Management, Inc	1,224,694	1,143,246	1,250,481	1,126,903	1,088,263	1,093,489	1,045,847	1,086,700
BlackRock Fund Advisors	28,993	28,993	33,828	0	27,200	2,384	0	32,197
BlackRock Institutional Trust Company, N A	18,711,875	18,546,326	20,077,012	19,210,961	19,094,035	18,753,304	18,557,366	18,578,774
BlackRock International Ltd	14,899	14,899	58,662	15,901	7,953	86,461	86,621	7,031
BlackRock Investment Management (Australia) Ltd	113,758	113,221	157,718	144,736	122,162	139,325	158,427	165,374
BlackRock Investment Management (UK) Ltd	2,264,852	2,210,768	2,222,218	2,169,933	2,165,406	2,353,798	2,439,602	2,445,659
BlackRock Investment Management, LLC	805,929	793,808	919,651	953,988	1,165,539	1,073,966	770,292	753,151
BlackRock Japan Co., Ltd	478,087	478,355	293,738	280,059	274,226	276,597	276,070	242,939
Blackstone Alternative Investment Advisors LLC	0	0	0	0	0	0	0	2,400
BLB&B Advisors, LLC	0	0	0	0	0	0	0	0
Blenheim Capital Management LLC NLE	0	0	0	0	0	0	0	0
Blue Bell Private Wealth Management, LLC	0	0	0	0	0	0	0	0
Blue Edge Capital, LLC	0	0	0	0	0	0	0	0
Blue Quay Investment Management Pty Ltd	0	0	0	0	16,000	16,000	16,000	0
BlueCrest Capital Management LLP	0	17,329	28,617	21,250	0	0	0	0
Bluefin Trading, LLC	0	0	0	0	0	0	0	0
Blume Capital Management, Inc	100	100	100	100	100	0	0	0
BMO Asset Management Inc	62,590	67,190	70,490	67,890	73,190	93,089	93,089	100,731

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018

BMO Asset Management U S	130	124	115	481	481	509	509	481
BMO Capital Markets (US)	2,248	2,268	2,282	2,312	17,638	17,761	57,054	65,939
BMO Family Office, LLC	8,101	5,608	6,987	4,119	3,702	3,987	3,429	3,540
BMO Harris Bank N A	18,946	18,804	19,262	20,642	21,058	20,249	19,558	18,891
BMO Nesbitt Burns Inc	793	35,213	1,555	22,687	23,741	17,638	16,785	19,232
BMO Private Investment Counsel Inc	0	0	0	0	0	0	0	299
BMT Investment Advisers	0	0	0	0	0	29,529	38,839	38,839
BNP Paribas Asset Management France SAS	25,955	27,273	29,481	26,283	9,322	14,224	16,792	20,449
BNP PARIBAS ASSET MANAGEMENT Japan Limited	16,701	16,701	16,701	16,701	16,701	16,701	16,701	16,701
BNP Paribas Asset Management Nederland N V	12	12	12	12	12	12	12	0
BNP Paribas Asset Management USA, Inc	31,729	27,837	26,255	33,526	0	0	0	0
BNP Paribas Securities Corp North America	35,184	24,209	98,617	268,829	165,475	216,040	85,792	229,292
BNY Mellon Asset Management	1,242,215	1,234,567	1,279,836	1,246,016	1,169,077	1,187,485	1,203,228	1,134,949
BNY Mellon Wealth Management	164,673	160,123	166,187	154,902	141,551	131,895	118,624	101,350
BOCI-Prudential Asset Management Ltd	7,136	6,868	6,868	11,993	11,993	18,213	18,213	9,505
BofA Global Research (US)	1,219,763	1,287,885	1,189,474	1,457,428	1,213,141	1,468,048	1,510,193	1,364,628
Bogart Wealth, LLC	0	0	0	0	0	0	0	0
Boothbay Fund Management, LLC	0	6,900	5,800	4,300	4,200	7,200	6,572	0
Bosera Asset Management Co , Ltd	626	626	692	692	692	692	692	692
Boston Common Asset Management, LLC	63,173	60,147	61,046	59,681	58,501	16,886	29,330	28,427
Boston Partners	0	0	0	0	0	0	0	0
Boston Private Bank & Trust Company NLE	4,681	4,681	4,681	0	0	0	0	0
Boston Trust Walden Company	217,409	225,132	228,944	242,385	254,324	265,904	259,039	494,798
Botswana Insurance Fund Management	0	0	0	0	0	0	0	0
Bourgeon Capital Management, LLC	0	0	4,000	0	0	0	0	0
BP Investment Management Limited	44,000	44,000	47,000	0	0	44,000	40,000	40,000
BPI Gestão de Activos - S G F I M , S A	0	0	0	0	0	0	0	0
Bradley, Foster & Sargent, Inc	7,507	8,722	9,002	29,403	39,912	42,305	549,915	507,574
Bragg Financial Advisors, Inc	4,324	4,014	3,794	0	0	0	0	0
Bramshill Investments, LLC	0	0	0	0	6,543	6,543	10,851	15,098
Brandes Investment Partners, L P	1,616,412	1,561,690	1,154,128	1,169,745	1,002,417	1,087,870	1,045,120	994,369
Brandywine Global Investment Management, LLC	1,464,466	1,356,999	1,261,622	1,340,856	0	0	0	0
Brandywine Oak Private Wealth LLC	0	0	0	0	0	0	0	0
Brave Asset Management, Inc	500	500	500	500	500	0	0	0
Braver Wealth Management, LLC NLE	4,000	0	0	0	0	0	0	0
Bremer Trust, N A	3,854	3,819	0	0	0	0	0	0
Brick & Kyle, Associates	1,025	975	975	975	0	0	0	0
Bridges Investment Management Inc	3,949	3,949	29,758	26,214	24,460	5,766	0	0
Bridgewater Associates, LP	110,900	104,800	97,100	98,500	23,197	19,198	16,677	15,455
Bridgeway Capital Management, LLC	0	0	0	0	0	0	0	0
Bridgworth Wealth Management	0	0	0	0	0	0	0	0
Brighton Jones LLC	0	9,625	0	9,046	0	0	0	0
Brinker Capital Inc NLE	0	0	0	0	13,330	14,118	14,118	13,206
Brinker Capital Investments, LLC	0	0	0	0	0	0	0	0
Bristlecone Advisors, LLC	0	0	0	0	0	322	0	0
British Columbia Investment Management Corp	244,994	199,052	227,640	198,319	212,324	207,324	211,822	204,233
Broadview Advisors, LLC NLE	0	0	0	0	0	0	0	0
Brompton Capital Advisors, Inc	47,900	47,900	40,200	40,200	51,200	51,200	46,000	46,000
Brown Advisory	20,057	23,028	20,813	34,491	48,741	48,888	45,405	46,425
Brown Advisory Securities, LLC	9,920	10,067	8,233	23,985	9,733	8,845	8,594	8,399
Brown Brothers Harriman & Company	4,273	4,273	4,273	3,175	675	175	100	200

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020

BMO Asset Management U S	481	481	481	481	1,051	1,353	299	120
BMO Capital Markets (US)	39,828	67,875	28,964	1,099	78,818	3,150	10,000	25,000
BMO Family Office, LLC	4,802	4,802	5,075	3,130	3,012	2,443	2,407	5,715
BMO Harris Bank N A	17,211	17,490	14,392	10,255	12,758	7,949	7,421	9,747
BMO Nesbitt Burns Inc	16,883	16,202	16,557	17,765	17,492	17,154	23,941	89,121
BMO Private Investment Counsel Inc	0	0	465	465	465	465	0	0
BMT Investment Advisers	43,152	43,152	46,652	46,652	46,652	0	0	0
BNP Paribas Asset Management France SAS	20,449	22,863	31,458	29,195	28,307	8,677	0	0
BNP PARIBAS ASSET MANAGEMENT Japan Limited	0	0	0	0	0	0	0	0
BNP Paribas Asset Management Nederland N V	0	0	0	0	0	0	0	0
BNP Paribas Asset Management USA, Inc	0	0	0	0	0	0	0	0
BNP Paribas Securities Corp North America	157,365	128,056	59,963	48,174	64,260	46,113	143,236	200,317
BNY Mellon Asset Management	1,126,476	1,117,112	1,185,322	1,179,432	1,176,076	1,160,263	1,118,906	1,088,529
BNY Mellon Wealth Management	103,585	103,757	96,750	101,482	98,702	134,219	116,039	113,212
BOCI-Prudential Asset Management Ltd	9,505	9,938	9,938	14,138	14,138	11,645	11,645	307
BofA Global Research (US)	1,529,458	1,421,895	1,414,683	1,382,529	1,039,983	1,177,417	1,004,903	579,023
Bogart Wealth, LLC	0	0	0	0	0	200	100	0
Boothbay Fund Management, LLC	6,000	5,058	0	0	0	0	0	0
Bosera Asset Management Co , Ltd	1,181	1,181	1,763	1,763	1,971	1,971	2,796	2,796
Boston Common Asset Management, LLC	29,547	29,002	0	0	0	130	0	0
Boston Partners	32,325	0	0	0	0	0	0	0
Boston Private Bank & Trust Company NLE	0	0	0	0	0	0	0	0
Boston Trust Walden Company	607,983	574,813	564,364	689,960	683,719	645,724	655,629	43,861
Botswana Insurance Fund Management	0	0	0	29,050	21,950	17,150	17,150	17,150
Bourgeon Capital Management, LLC	0	0	0	0	0	0	0	0
BP Investment Management Limited	40,000	43,000	0	0	42,000	39,000	0	0
BPI Gest�o de Activos - S G F I M , S A	5,298	5,298	0	0	0	0	0	0
Bradley, Foster & Sargent, Inc	524,567	508,453	38,466	27,391	7,700	0	0	0
Bragg Financial Advisors, Inc	0	0	0	0	0	0	0	0
Bramshill Investments, LLC	0	0	0	0	0	0	0	0
Brandes Investment Partners, L P	976,066	944,465	851,034	837,721	799,500	0	0	0
Brandywine Global Investment Management, LLC	56,535	54,747	243,411	237,491	372	0	0	0
Brandywine Oak Private Wealth LLC	0	0	2,524	0	0	0	0	0
Brave Asset Management, Inc	0	0	0	0	0	0	0	0
Braver Wealth Management, LLC NLE	0	0	0	0	0	0	0	0
Bremer Trust, N A	0	0	567	567	0	0	0	0
Brick & Kyle, Associates	0	0	0	0	0	0	0	0
Bridges Investment Management Inc	0	0	0	0	0	0	0	0
Bridgewater Associates, LP	13,712	14,357	30,934	17,350	19,523	16,979	17,283	22,447
Bridgeway Capital Management, LLC	0	38,300	38,300	38,300	0	0	0	0
Bridgworth Wealth Management	660	0	0	0	0	0	0	0
Brighton Jones LLC	0	0	0	0	0	0	0	0
Brinker Capital Inc NLE	13,206	12,611	11,318	12,902	12,902	12,902	12,902	11,957
Brinker Capital Investments, LLC	0	0	0	352	0	0	0	0
Bristlecone Advisors, LLC	0	0	0	0	0	0	0	0
British Columbia Investment Management Corp	160,543	117,533	129,632	103,731	106,624	85,739	88,593	41,131
Broadview Advisors, LLC NLE	0	0	0	9,400	18,300	18,300	0	0
Brompton Capital Advisors, Inc	48,200	48,200	38,600	38,600	39,200	39,200	52,700	52,700
Brown Advisory	46,590	25,812	16,134	15,061	11,506	11,556	0	0
Brown Advisory Securities, LLC	7,513	7,220	0	0	0	0	0	0
Brown Brothers Harriman & Company	100	267	333	333	343	631	504	70

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018

Bruderman Asset Management, LLC	0	0	0	0	0	0	0	0
Bryn Mawr Trust Company	136,481	134,496	127,049	128,031	152,916	165,990	145,010	144,549
BSI S A NLE	940	940	940	0	0	0	0	0
BTR Capital Management, Inc	0	23,655	23,655	63,580	65,305	64,205	32,692	22,390
Buckingham Strategic Wealth, LLC	0	0	0	0	0	0	0	0
Burke & Herbert Bank & Trust Co	0	0	3,300	4,100	4,300	0	0	0
Burt Wealth Advisors, Inc	157	157	157	157	157	157	0	0
Bussey Wealth Management, Inc	0	4,680	0	0	0	0	0	0
C M Bidwell & Associates, Ltd	0	0	0	0	0	0	0	0
CaaS Capital Management LP	0	0	0	0	0	0	0	0
Cable Hill Partners, LLC	230	197	183	111	111	111	111	0
Cadence Capital Management, LLC NLE	0	0	0	0	33,820	57,644	36,921	58,668
Caisse de Depot et Placement du Quebec	17,000	143,100	6,200	9,400	25,300	27,900	30,800	52,200
Caixabank Asset Management SGIIIC, S A U	7,790	7,790	7,790	12,789	10,288	10,294	10,287	2,500
Calamos Advisors LLC	27,746	27,771	51,485	51,372	49,843	51,738	50,664	133,168
Caldwell Investment Management Ltd	0	0	0	0	0	0	0	0
California Public Employees' Retirement System	1,304,240	1,237,940	1,193,240	1,096,840	1,045,540	1,017,778	996,283	976,451
California State Teachers Retirement System	810,542	817,442	796,442	762,342	701,621	655,151	658,221	637,707
Callan LLC	20,371	20,571	20,771	27,719	25,171	10,896	10,896	11,196
Calton & Associates, Inc	0	0	0	0	0	0	148	0
Camarda Wealth Advisory Group	117	117	0	0	0	0	0	0
Cambridge Financial Group, Inc	0	0	82,838	0	0	0	0	0
Cambridge Investment Research Advisors, Inc	0	0	0	0	0	0	0	0
Campbell & Company, Inc	0	0	0	0	0	0	7,522	0
Canal Capital Management, LLC	0	3,500	0	6,000	6,000	5,700	0	0
Canal Insurance Company	28,000	28,000	8,000	8,000	8,000	0	0	0
Canandaigua National Bank & Trust Company	3,766	3,626	3,637	0	0	0	0	0
Candriam Belgium S A	35,459	153,575	164,224	61,233	63,052	59,174	156,761	251,382
Candriam Luxembourg S A	4,980	0	0	0	0	0	0	0
Candriam S A (France)	10,181	8,933	8,933	10,555	11,609	11,609	13,027	12,678
Cape Cod Five Cents Savings Bank	29,608	32,178	32,762	19,852	11,541	0	0	0
Capital Advisors, Inc (OK)	6,400	5,176	5,176	5,360	5,360	5,328	5,440	0
Capital Advisors, Ltd , LLC	0	0	0	0	0	0	0	0
Capital Bank and Trust Company	0	0	0	0	0	0	89	0
Capital Fund Management S A	496,385	3,925	0	0	0	0	18,561	152,089
Capital International Investors	570,000	0	0	0	0	0	0	0
Capital Investment Advisory Services, LLC	0	0	6,422	0	0	0	0	0
Capital Research Global Investors	15,403,071	15,402,560	16,259,528	15,373,850	12,963,850	12,963,850	12,963,979	12,978,706
Capital World Investors	0	0	0	0	0	0	0	0
Capstone Investment Advisors, LLC	44,751	0	0	0	0	4,508	15,220	0
Caption Management, LLC	0	0	0	0	0	0	3,500	0
CAPTRUST Financial Advisors	0	0	0	0	0	72	10,519	9,719
Carl Domino, Inc	5,706	5,056	0	0	0	0	0	0
Carlson Capital, L P	0	0	0	0	0	0	0	0
Carret Asset Management, LLC	13,344	13,544	17,794	20,269	19,794	19,544	18,235	0
Carroll Financial Associates, Inc	55	53	53	483	53	578	28	179
Carson Wealth Management Group	18,642	18,956	19,968	111,892	568,545	791,964	661,499	656,294
Cascade Investment Advisors, Inc	0	0	0	0	13	0	0	0
CastleArk Management, LLC	82,810	41,410	102,610	134,760	0	0	0	0
Castlemaine Partners, LLC NLE	200	300	300	1,000	1,300	700	700	700
CATAM Asset Management AG	3,000	3,000	3,000	3,000	3,000	0	0	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020

Bruderman Asset Management, LLC	0	0	349	349	0	0	0	0
Bryn Mawr Trust Company	187,026	189,196	170,011	177,117	180,041	0	0	0
BSI S A NLE	0	0	0	0	0	0	0	0
BTR Capital Management, Inc	22,460	21,585	0	6,280	0	0	0	0
Buckingham Strategic Wealth, LLC	5,271	4,205	0	12,719	13,188	12,821	12,861	19,668
Burke & Herbert Bank & Trust Co	4,800	4,800	0	0	0	0	0	0
Burt Wealth Advisors, Inc	0	0	0	120	0	0	0	0
Busey Wealth Management, Inc	0	0	0	0	0	0	0	0
C M Bidwell & Associates, Ltd	0	0	0	5,915	0	0	0	0
CaaS Capital Management LP	0	0	0	0	0	0	0	49,000
Cable Hill Partners, LLC	0	0	0	0	0	0	0	0
Cadence Capital Management, LLC NLE	47,220	38,499	0	6,461	0	0	1,668	1,718
Caisse de Depot et Placement du Quebec	44,800	38,300	44,200	26,600	27,000	31,400	26,900	64,478
Caixabank Asset Management SGIIIC, S A U	2,500	2,500	2,500	2,502	2,506	2,500	2,502	2,487
Calamos Advisors LLC	0	0	0	0	0	0	0	0
Caldwell Investment Management Ltd	5,382	5,382	5,382	5,382	0	0	0	0
California Public Employees' Retirement System	845,125	820,595	795,900	756,975	625,702	719,358	829,103	841,878
California State Teachers Retirement System	642,214	642,068	639,688	624,878	617,096	619,337	601,462	646,410
Callan LLC	10,696	11,896	11,896	11,896	11,896	13,496	13,496	13,496
Calton & Associates, Inc	0	0	0	0	0	0	0	0
Camarda Wealth Advisory Group	0	0	0	0	0	0	0	0
Cambridge Financial Group, Inc	0	0	0	0	0	0	0	0
Cambridge Investment Research Advisors, Inc	0	0	0	37,909	25,794	23,885	16,441	18,880
Campbell & Company, Inc	0	0	0	0	0	0	0	0
Canal Capital Management, LLC	0	0	0	0	0	0	0	0
Canal Insurance Company	0	0	0	0	0	0	0	0
Canandaigua National Bank & Trust Company	0	0	0	0	0	0	0	0
Candriam Belgium S A	124,899	294,036	291,261	100,787	48,438	45,641	34,549	34,549
Candriam Luxembourg S A	0	0	0	0	0	0	0	0
Candriam S A (France)	12,822	12,728	16,060	8,933	8,933	0	0	0
Cape Cod Five Cents Savings Bank	0	0	0	0	0	0	0	0
Capital Advisors, Inc (OK)	5,171	5,171	0	0	0	0	0	0
Capital Advisors, Ltd , LLC	0	0	0	0	0	0	0	504
Capital Bank and Trust Company	0	0	0	0	0	57	0	0
Capital Fund Management S A	0	0	9,032	302,220	326,920	201,391	0	0
Capital International Investors	0	0	0	0	0	0	0	0
Capital Investment Advisory Services, LLC	0	0	1,114	1,114	1,014	1,014	0	0
Capital Research Global Investors	500,000	0	0	0	0	0	3,900,000	1,747,000
Capital World Investors	0	0	0	0	0	0	3,900,000	1,747,000
Capstone Investment Advisors, LLC	0	2,627	11,436	12,061	44,398	52,821	72,719	110,287
Caption Management, LLC	0	0	0	0	0	0	0	0
CAPTRUST Financial Advisors	3,630	3,505	2,725	3,128	2,218	1,729	0	0
Carl Domino, Inc	0	0	0	0	0	0	0	0
Carlson Capital, L P	0	0	0	0	549,500	240,000	0	0
Carret Asset Management, LLC	0	0	0	0	0	0	0	0
Carroll Financial Associates, Inc	179	182	151	151	151	151	151	151
Carson Wealth Management Group	611,016	595,024	9,214	1,116	8,434	6,925	7,858	6,406
Cascade Investment Advisors, Inc	0	0	0	0	0	0	0	0
CastleArk Management, LLC	0	0	0	0	0	0	0	0
Castlemaine Partners, LLC NLE	700	700	700	0	0	0	0	0
CATAM Asset Management AG	0	0	0	0	0	0	0	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018

Caxton Associates LP	12,700	0	27,905	0	0	0	0	0
Cedar Brook Financial Partners, LLC	0	0	0	0	0	0	0	0
Cedar Hill Associates, LLC NLE	176,805	199,475	194,825	144,530	142,245	142,540	138,195	125,590
Cedar Mountain Advisors, LLC	0	0	0	0	0	0	0	0
Cedar Wealth Management, LLC	957	957	957	1,295	1,685	1,990	1,884	5,453
Centaurus Financial, Inc	0	0	0	0	0	0	0	0
Centenus Global Management, LP NLE	0	0	0	0	0	0	0	0
Center for Financial Planning, Inc	0	0	0	0	0	0	0	0
Centerpoint Advisors, LLC	0	0	0	0	0	0	532	569
CenterStar Asset Management, LLC	0	0	0	0	0	0	0	0
Centiva Capital, LP	0	0	0	0	0	0	0	0
Central Trust & Investment Company	20,123	38,654	38,003	19,974	18,781	21,201	19,080	38,157
Century Management Financial Advisors	314,406	309,331	336,237	396,699	393,795	409,025	740,362	700,649
Cerebellum Capital, LLC	0	0	0	0	0	0	37,234	0
Ceresio Investors	0	29,712	29,712	0	0	0	0	0
Cerity Partners LLC	0	0	0	0	0	8,900	8,085	0
Cetera Advisor Networks LLC	4,663	7,682	5,611	5,575	5,521	5,208	0	0
CFM Wealth Partners LLC	0	0	0	0	0	0	0	0
Champlain Investment Partners, LLC	0	0	0	0	0	0	0	0
Charles Schwab Investment Management, Inc	1,639,871	1,480,156	1,320,151	1,357,160	1,465,263	1,491,942	1,475,067	1,553,159
Chatham Wealth Management	0	0	0	0	0	0	0	0
Checchi Capital Advisers, LLC	9,994	10,353	10,582	10,490	10,335	10,137	10,149	9,973
Chemical Bank	3,869	3,869	3,844	0	0	0	0	0
Chevy Chase Trust Company	432,463	426,052	427,671	459,960	463,617	469,254	465,029	459,601
Chicago Equity Partners, LLC NLE	276,705	370,355	353,845	6,010	0	0	3,150	3,150
Chicago Partners Wealth Advisors	0	0	0	0	400	1,050	700	700
Chilton Capital Management, LLC	0	0	0	0	0	0	0	0
China Tonghai Asset Management Limited	0	0	0	0	0	0	0	0
Choate Investment Advisors LLC	8,169	8,169	8,169	8,169	0	0	0	0
CI Global Asset Management	22,599	22,599	22,599	22,599	51,662	22,599	28,090	28,090
CIBC Asset Management Inc	42,622	93,083	92,426	61,521	50,944	51,781	40,830	39,854
CIBC Bank USA	0	0	0	5,900	7,135	0	0	0
CIBC Private Wealth Management	26,098	24,018	22,247	20,746	24,457	22,479	22,162	14,664
CIBC World Markets Corp	0	0	26,050	39,667	53,754	55,495	76,971	49,448
CIBC World Markets Inc	0	0	10,842	4,800	0	0	0	0
CIGNA Investments, Inc	0	0	13,995	15,760	14,613	14,414	13,735	13,435
Cipher Capital LP	0	0	0	0	0	0	0	0
Citadel Advisors LLC	12,716	141,973	222,532	29,380	9,728	36,655	127,312	573,266
Citi Investment Research (US)	120,796	62,046	48,616	104,545	66,532	111,256	192,725	253,878
Citizens Business Bank	10,000	10,000	35,665	62,721	66,611	65,474	57,952	59,178
Citizens Financial Group, Inc	0	0	0	0	0	0	51	0
City National Rochdale, LLC	3,861	3,602	3,676	3,625	3,004	2,830	2,804	2,831
C-J Advisory, Inc	0	594	498	360	360	360	360	117
CKW Financial Group, LLC	1,300	0	1,400	1,400	1,400	1,400	1,400	1,400
Claraphi Advisory Network, LLC	0	0	0	0	0	0	0	0
Clarfeld Financial Advisors LLC	0	0	0	0	0	0	0	0
ClariVest Asset Management LLC	7	0	0	0	0	0	0	0
Claro Advisors, LLC	0	0	0	0	0	0	0	0
Clarus Wealth Advisors, LLC	0	0	0	0	0	0	0	0
Clean Yield Asset Management	94	94	0	94	0	0	0	0
Clear Harbor Asset Management, LLC	0	0	0	0	0	0	0	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020

Caxton Associates LP	0	0	7,772	0	0	0	0	22,364
Cedar Brook Financial Partners, LLC	0	0	0	6,033	0	0	0	0
Cedar Hill Associates, LLC NLE	112,295	97,718	32,042	32,042	32,042	32,042	32,042	32,042
Cedar Mountain Advisors, LLC	0	0	0	0	0	0	351	351
Cedar Wealth Management, LLC	5,453	8,552	11,872	11,279	11,124	16,649	4,017	5,227
Centaurus Financial, Inc	42	0	0	0	0	0	0	0
Centenus Global Management, LP NLE	0	0	0	145,000	0	0	115,000	0
Center for Financial Planning, Inc	0	0	0	0	0	0	724	262
Centerpoint Advisors, LLC	601	532	0	0	0	0	0	0
CenterStar Asset Management, LLC	0	882	0	0	0	0	0	0
Centiva Capital, LP	0	0	49,834	50,006	0	0	0	66,029
Central Trust & Investment Company	33,407	21,129	8,803	8,368	8,878	8,878	5,660	5,035
Century Management Financial Advisors	697,926	1,034,941	1,060,288	1,045,111	1,028,085	1,010,313	974,643	20,273
Cerebellum Capital, LLC	0	0	0	0	0	0	0	0
Ceresio Investors	0	0	0	0	0	0	0	0
Cerity Partners LLC	9,765	0	0	0	0	0	0	0
Cetera Advisor Networks LLC	0	0	0	0	0	0	0	0
CFM Wealth Partners LLC	0	0	0	0	0	0	703	703
Champlain Investment Partners, LLC	0	0	6,600	6,300	6,300	6,300	6,300	0
Charles Schwab Investment Management, Inc	1,635,287	1,713,938	1,780,061	2,572,578	2,612,432	3,404,960	3,441,242	3,507,963
Chatham Wealth Management	0	0	0	0	0	0	400	0
Checchi Capital Advisers, LLC	9,874	9,907	0	0	0	0	0	0
Chemical Bank	0	0	0	0	0	0	0	0
Chevy Chase Trust Company	456,316	446,295	312,263	313,063	313,793	306,318	314,220	311,967
Chicago Equity Partners, LLC NLE	3,150	3,150	13,105	0	0	0	0	0
Chicago Partners Wealth Advisors	700	470	0	0	0	0	0	0
Chilton Capital Management, LLC	6,910	6,910	0	0	0	0	0	0
China Tonghai Asset Management Limited	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150
Choate Investment Advisors LLC	0	0	0	0	0	0	0	0
CI Global Asset Management	28,090	28,090	28,090	30,690	30,690	30,690	4,197	3,991
CIBC Asset Management Inc	41,299	40,464	39,729	38,798	39,355	37,343	36,344	32,114
CIBC Bank USA	0	0	0	0	0	0	0	0
CIBC Private Wealth Management	666	0	0	0	0	0	37,503	0
CIBC World Markets Corp	53,982	71,364	53,081	215,028	65,329	42,818	44,465	116,747
CIBC World Markets Inc	0	0	8,901	7,611	0	0	0	74,844
CIGNA Investments, Inc	11,801	11,001	10,870	10,520	10,220	10,720	9,783	10,433
Cipher Capital LP	18,260	0	0	0	0	0	71,256	67,018
Citadel Advisors LLC	787,806	532,219	621,490	6,258	2,516,117	6,687,945	2,587,407	2,133,700
Citi Investment Research (US)	263,344	107,247	268,536	139,893	232,020	181,235	498,810	220,480
Citizens Business Bank	58,481	57,512	11,689	18,499	17,768	23,468	18,300	18,300
Citizens Financial Group, Inc	0	0	0	210	53	210	437	257
City National Rochdale, LLC	2,717	2,303	1,914	3,929	3,464	2,800	3,477	2,411
C-J Advisory, Inc	118	118	119	120	121	122	0	0
CKW Financial Group, LLC	1,400	2,000	2,500	2,500	2,500	2,500	2,500	2,500
Claraphi Advisory Network, LLC	0	0	0	0	0	0	0	507
Clarfeld Financial Advisors LLC	0	0	225	225	225	225	225	225
ClariVest Asset Management LLC	0	0	0	0	0	0	0	0
Claro Advisors, LLC	0	0	55	0	0	0	0	0
Clarus Wealth Advisors, LLC	1,950	950	1,000	700	0	0	0	0
Clean Yield Asset Management	0	0	44	0	0	0	0	0
Clear Harbor Asset Management, LLC	0	0	0	0	0	0	450	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018

Clear Perspective Advisors, LLC	0	0	475	175	175	175	0	0
ClearArc Capital, Inc NLE	21,017	20,506	20,090	20,012	17,693	17,915	17,934	20,109
ClearBridge Investments, LLC	1,059,534	1,041,694	1,010,170	1,536,963	1,525,210	1,570,530	1,470,612	1,495,577
ClearBridge, LLC	1,353,263	1,570,593	1,208,091	1,359,940	1,353,760	1,294,182	1,452,590	1,262,196
Clearstead Advisors LLC	0	0	3,794	0	5,484	4,916	5,090	0
Clifford Swan Investment Counselors	57,388	54,838	52,358	55,603	56,948	60,374	51,024	53,989
Clinton Group, Inc	0	6,010	0	24,039	135,578	0	0	0
Cloud Capital LLC	308	589	401	155	155	155	155	155
Clough Capital Partners, LP	471,697	443,797	0	0	0	0	0	0
CMT Capital Markets Trading GmbH	0	0	0	0	0	0	0	0
CNA Insurance Companies	47,450	47,450	47,450	0	0	0	0	0
CNB Bank	0	0	0	0	0	0	41	0
Coastal Investment Advisors, Inc	0	0	0	0	0	0	0	0
Coastline Trust Company, N A	0	0	0	0	4,375	5,485	0	0
Coatue Management, L L C	0	0	0	0	0	0	0	0
Cobblestone Capital Advisors, LLC	5,372	0	0	0	0	0	0	0
Cognios Capital	0	0	16,696	0	0	0	305	305
Cohen & Steers Capital Management, Inc	0	38,800	144,300	0	0	0	0	0
Colonial Trust Advisors, Inc	24,311	23,786	21,912	22,403	22,605	20,027	23,918	16,728
Colorado Financial Management LLC	2,364	2,164	2,164	2,164	2,164	2,204	2,204	5,204
Columbia Asset Management, L L C	4,345	3,595	3,495	0	0	5,500	5,500	5,950
Columbia Pacific Advisors, LLC	0	0	0	1,822	0	0	0	0
Columbia Pacific Wealth Management	3,751	5,784	5,784	6,531	5,236	4,630	0	0
Columbia Threadneedle Investments (US)	303,336	259,954	615,383	1,578,266	847,708	634,489	581,331	523,027
Columbia Threadneedle Management Limited	17,129	17,174	16,353	21,016	34,574	30,226	103	103
Columbus Circle Investors	0	0	0	0	1,239	1,105	1,105	1,105
Columbus Hill Capital Management, L P	0	185,000	0	0	0	0	0	0
Column Capital Advisors, LLC	0	0	0	0	0	0	0	0
Comerica, Inc	18,382	10,171	10,251	9,165	8,613	5,602	3,735	3,214
Commerzbank AG	18,379	13,130	27,738	74,440	31,141	118,060	96,092	81,272
Commonwealth Bank of Australia	81,053	78,853	81,674	83,407	81,133	83,323	82,326	70,384
Commonwealth Financial Network	62,203	56,839	56,805	59,563	50,912	68,627	97,559	101,294
Community Bank & Trust	16,667	17,704	15,889	15,917	14,097	12,092	5,188	0
Community Bank System, Inc	9,500	0	0	0	0	0	0	0
Community Bank, N A	7,473	7,154	7,004	6,504	6,114	5,114	4,913	4,129
Compagnie Lombard Odier SCmA	0	0	0	0	0	1,000	1,000	0
Compass Efficient Model Portfolios, LLC NLE	4,832	4,896	4,793	4,592	4,592	4,083	4,015	0
Concept Asset Management	450	450	450	450	450	450	450	450
Concert Wealth Management Inc NLE	0	0	0	7,021	0	0	0	0
Concorde Asset Management, LLC	0	3,900	0	0	0	0	0	0
Congress Asset Management Company, LLP	17,890	17,153	18,208	17,030	0	0	0	0
Conning, Inc	123,556	123,566	83,588	83,258	82,968	82,978	32,758	32,678
Connor, Clark & Lunn Investment Management Ltd	0	1,233	1,233	33,925	0	10,450	0	0
Contravisory Investment Management, Inc	0	0	0	77,922	0	0	0	0
Convergence Investment Partners, LLC	0	0	0	0	0	0	0	1,003
Convergent Wealth Advisors NLE	6	0	0	0	0	0	0	0
Copeland Capital Management, LLC	6,666	4,000	4,000	4,000	0	0	0	0
Corbenic Partners, LLC	0	0	0	0	0	0	0	0
Cordasco Financial Network, Inc	0	0	0	0	0	0	0	0
CoreCommodity Management, LLC	5,808	5,728	5,604	5,450	5,450	4,800	4,914	7,795
CoreShares Asset Management (Pty) Ltd	0	0	0	0	0	0	0	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020
Clear Perspective Advisors, LLC	0	0	0	0	0	0	0	0
ClearArc Capital, Inc NLE	20,154	20,352	7,229	14,385	9,408	12,132	10,104	10,104
ClearBridge Investments, LLC	1,525,915	2,481,181	1,130,423	10,411	10,411	10,411	10,411	10,411
ClearBridge, LLC	1,228,589	1,228,589	10,411	10,411	10,411	10,411	10,411	10,411
Clearstead Advisors LLC	0	0	0	0	0	0	0	0
Clifford Swan Investment Counselors	64,013	63,413	92,233	92,120	74,220	79,766	75,966	213,516
Clinton Group, Inc	0	0	0	0	0	0	0	0
Cloud Capital LLC	155	155	0	0	0	0	0	0
Clough Capital Partners, LP	0	0	0	0	0	0	0	0
CMT Capital Markets Trading GmbH	0	0	0	0	0	0	0	227,424
CNA Insurance Companies	0	0	0	0	0	0	0	0
CNB Bank	0	0	0	0	0	0	0	0
Coastal Investment Advisors, Inc	0	0	0	7,817	8,331	7,431	7,581	0
Coastline Trust Company, N A	0	0	0	0	0	0	0	0
Coatue Management, L L C	0	0	0	0	0	0	13,548	0
Cobblestone Capital Advisors, LLC	4,600	5,060	23,740	11,040	11,040	10,440	0	15,090
Cognios Capital	305	305	305	305	305	305	0	0
Cohen & Steers Capital Management, Inc	0	0	0	0	0	0	0	0
Colonial Trust Advisors, Inc	13,579	13,366	9,796	0	0	0	0	0
Colorado Financial Management LLC	5,204	5,204	5,204	5,204	5,164	0	0	0
Columbia Asset Management, L L C	5,950	5,950	5,650	5,650	0	0	0	0
Columbia Pacific Advisors, LLC	0	0	0	0	0	0	0	0
Columbia Pacific Wealth Management	4,565	0	0	0	0	0	0	0
Columbia Threadneedle Investments (US)	549,454	515,925	233,842	225,880	238,854	270,786	221,346	243,216
Columbia Threadneedle Management Limited	103	5,103	6,703	7,000	7,001	9,731	9,699	9,400
Columbus Circle Investors	1,105	1,105	1,105	1,105	0	0	0	0
Columbus Hill Capital Management, L P	0	0	0	0	0	0	0	0
Column Capital Advisors, LLC	0	0	0	0	0	0	459	686
Comerica, Inc	3,232	3,198	3,304	3,143	2,412	2,412	2,405	1,176
Commerzbank AG	69,258	74,561	132,050	167,922	285,299	285,282	316,099	224,261
Commonwealth Bank of Australia	87,322	93,122	118,655	117,455	119,908	119,908	0	0
Commonwealth Financial Network	126,130	147,613	147,409	143,507	134,840	57,102	53,424	47,004
Community Bank & Trust	0	0	0	0	0	0	0	0
Community Bank System, Inc	0	0	0	0	0	0	0	0
Community Bank, N A	3,055	2,705	2,165	1,015	815	0	0	0
Compagnie Lombard Odier SCmA	0	0	0	0	0	0	1,100	1,100
Compass Efficient Model Portfolios, LLC NLE	0	0	0	0	0	0	0	0
Concept Asset Management	450	450	450	0	0	0	0	450
Concert Wealth Management Inc NLE	0	0	0	0	0	0	0	0
Concorde Asset Management, LLC	0	0	0	0	0	0	0	0
Congress Asset Management Company, LLP	0	0	0	0	0	0	0	0
Conning, Inc	12,650	12,055	11,385	6,531	0	0	0	0
Connor, Clark & Lunn Investment Management Ltd	0	0	33,850	16,600	0	150,065	0	0
Contravisory Investment Management, Inc	0	0	0	0	0	0	0	15,308
Convergence Investment Partners, LLC	0	0	0	0	0	0	0	0
Convergent Wealth Advisors NLE	0	0	0	0	0	0	0	0
Copeland Capital Management, LLC	0	0	0	0	0	0	0	0
Corbenic Partners, LLC	0	0	0	0	0	0	75	75
Cordasco Financial Network, Inc	0	0	275	275	0	0	0	0
CoreCommodity Management, LLC	17,776	39,469	38,564	45,184	26,358	12,621	11,499	0
CoreShares Asset Management (Pty) Ltd	0	0	1,349	0	0	0	0	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018

Corient Capital Partners, LLC	0	3,597	3,597	0	0	0	0	0
Cornér Banca S A	0	0	0	0	0	10,000	10,000	10,000
Cornerstone Advisors, Inc (NC)	0	0	0	0	12,000	0	0	0
Cornerstone Advisors, Inc (WA)	361	361	1,395	1,395	445	392	303	106
Cornerstone Capital Management Holdings LLC NLE	239,816	192,273	173,555	184,059	81,308	64,879	71,621	0
Cornerstone Capital Management LLC	0	10,798	10,798	3,600	3,600	3,600	3,600	3,600
Cornerstone Wealth Management, LLC	0	0	0	0	0	0	0	0
Corvid Peak Capital Management, LLC	0	0	0	0	15,230	15,230	10,153	0
Counsel Portfolio Services, Inc	0	0	0	0	0	0	0	0
Country Trust Bank	313,268	310,445	306,289	306,898	1,390	142	65	65
Courier Capital, LLC	8,762	8,762	8,602	8,602	8,952	8,752	8,352	8,477
Covenant Multi-Family Offices, LLC	0	0	0	0	0	0	1,380	37,570
Covington Capital Management	0	0	0	0	0	2,025	2,025	2,025
Coyle Financial Counsel LLC	0	0	0	0	0	0	0	0
CPP Investment Board	70,910	122,556	77,056	165,458	235,158	306,556	284,258	232,156
CPR Asset Management	333,000	193,100	193,100	193,100	193,100	193,100	46,800	55,700
C-QUADRAT Asset Management (UK) LLP	7,000	7,000	7,000	7,000	7,000	7,000	7,000	0
Crawford Investment Counsel, Inc	5,056	5,056	5,070	5,056	5,056	5,056	5,056	0
Creative Financial Group Ltd	0	0	0	0	0	3,041	2,478	2,886
Creative Planning, Inc	18,358	19,197	25,337	28,168	30,433	29,820	23,544	21,265
Credit Capital Investments, LLC	0	0	10,000	12,500	12,500	12,500	0	0
Credit Suisse Asset Management	371,157	371,679	374,908	410,135	389,815	383,594	413,593	419,439
Credit Suisse Asset Management, LLC (US)	0	0	19,386	3,022	0	0	4,946	0
Crédit Suisse Gestión S G I I C , S A	3,504	3,504	3,504	3,504	3,504	3,504	3,504	3,504
Credit Suisse International	4,273	5,956	1,856	56,111	202,408	27,877	33,717	282,430
Credit Suisse Securities (Europe) Limited	21,933	5,600	463	850	850	288	1	12
Credit Suisse Securities (USA) LLC	213,571	346,832	185,028	184,650	133,180	330,049	111,220	288,167
Cresset Asset Management, LLC	0	0	0	0	0	0	0	0
Crestwood Advisors Group LLC	0	0	0	754	0	0	0	0
Crewe Advisors LLC	0	0	0	0	0	0	11,941	10,836
Cribstone Capital Management, LLC	814	895	915	939	1,049	1,138	965	1,067
Croft-Leominster, Inc NLE	18,469	18,265	18,224	20,956	20,931	20,869	0	0
Crossmark Global Investments, Inc	26,541	25,854	28,627	27,395	25,595	25,854	26,472	24,120
Crow Point Partners, LLC NLE	0	0	1,450	0	0	0	0	0
Csenge Advisory Group, LLC	0	0	0	0	0	0	0	0
CSS, LLC	19,420	0	10,158	0	0	0	0	0
CT Financial Advisors LLC	195	0	0	0	0	0	0	0
Cubic Asset Management, LLC	21,945	21,930	21,485	21,260	21,160	20,660	19,445	19,360
Cubist Systematic Strategies, LLC	27,568	3,947	19,997	13,744	11,098	1,399	38,967	0
Cullinan Associates, Inc	42,500	8,800	0	0	0	0	0	0
Cutler Group, LP	23,601	46,793	120,817	20,995	248,359	26,783	41,930	45,270
Cutter & Company, Inc	0	0	0	0	0	0	0	0
CX Institutional, L L C	0	0	0	0	0	0	0	0
Cypress Asset Management, Inc	0	0	4,608	7,066	6,524	6,305	5,251	0
Cypress Capital Management, LLC (WY)	0	0	0	0	0	0	0	0
D E Shaw & Co , L P	48,968	0	6,200	80,238	22,584	31,143	31,720	41,786
D L Carlson Investment Group, Inc	0	58,969	54,819	48,462	48,278	45,985	32,305	0
D A Davidson & Co	48,424	21,045	52,612	72,432	75,511	92,044	96,229	102,695
Dacheng Fund Management Co , Ltd	329	329	788	788	788	788	788	788
Daiwa Asset Management (Singapore) Ltd	0	0	404	404	404	5,308	5,904	5,904
Daiwa Asset Management Co , Ltd	9,060	16,060	11,160	10,660	10,660	11,418	11,500	13,356

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020
Corient Capital Partners, LLC	0	0	0	0	0	8,134	8,045	0
Cornér Banca S A	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Cornerstone Advisors, Inc (NC)	0	0	0	0	0	0	0	0
Cornerstone Advisors, Inc (WA)	106	106	219	264	389	0	0	0
Cornerstone Capital Management Holdings LLC NLE	0	0	0	0	0	0	0	0
Cornerstone Capital Management LLC	3,600	3,600	0	0	0	0	0	0
Cornerstone Wealth Management, LLC	1,316	792	0	0	0	0	0	0
Corvid Peak Capital Management, LLC	0	0	0	0	0	0	0	0
Counsel Portfolio Services, Inc	0	0	0	0	0	0	5,100	7,800
Country Trust Bank	64	16	0	0	0	0	0	0
Courier Capital, LLC	8,477	8,477	9,760	10,060	9,960	0	6,265	0
Covenant Multi-Family Offices, LLC	37,570	46,755	58,755	58,755	58,755	59,155	59,555	0
Covington Capital Management	2,025	2,025	2,975	2,975	3,275	2,624	448	325
Coyle Financial Counsel LLC	83	0	0	0	0	0	0	0
CPP Investment Board	171,688	227,488	380,556	568,716	511,260	354,308	248,851	143,490
CPR Asset Management	55,700	44,500	44,500	44,500	44,500	32,000	32,000	0
C-QUADRAT Asset Management (UK) LLP	0	0	7,000	7,000	7,000	7,000	7,000	0
Crawford Investment Counsel, Inc	5,056	5,075	0	0	0	0	0	0
Creative Financial Group Ltd	2,887	1,854	50	50	50	50	0	12,862
Creative Planning, Inc	20,330	27,225	25,680	24,822	21,095	21,169	16,941	20,865
Credit Capital Investments, LLC	0	0	0	0	0	0	0	0
Credit Suisse Asset Management	367,115	366,428	412,449	295,589	284,216	299,054	391,309	647,978
Credit Suisse Asset Management, LLC (US)	0	0	0	0	0	0	0	0
Crédit Suisse Gestión S G I I C , S A	0	0	0	0	0	0	0	0
Credit Suisse International	53,753	13,760	97,507	200,675	34,609	27,855	45,097	118,544
Credit Suisse Securities (Europe) Limited	91	1,477	1,819	1,186	9,693	4,332	6,434	10,730
Credit Suisse Securities (USA) LLC	203,936	245,140	403,632	350,565	349,766	303,974	327,993	257,013
Cresset Asset Management, LLC	0	0	635	635	0	0	0	0
Crestwood Advisors Group LLC	0	0	0	0	0	0	0	0
Crewe Advisors LLC	9,038	1,087	4,654	4,654	1,087	1,087	688	2
Cribstone Capital Management, LLC	1,277	1,257	375	1,355	1,137	1,137	125	0
Croft-Leominster, Inc NLE	0	0	0	0	0	0	0	0
Crossmark Global Investments, Inc	28,840	26,080	55,070	56,020	51,827	49,838	27,799	24,607
Crow Point Partners, LLC NLE	0	0	0	0	0	0	0	0
Csenge Advisory Group, LLC	0	8	0	0	0	0	0	0
CSS, LLC	0	0	0	0	0	0	0	0
CT Financial Advisors LLC	0	0	0	0	0	0	0	0
Cubic Asset Management, LLC	19,360	19,360	18,060	16,755	16,205	14,630	12,520	12,420
Cubist Systematic Strategies, LLC	7,821	6,479	103,439	75,268	33,958	0	227,672	120,124
Cullinan Associates, Inc	0	0	0	0	0	0	0	0
Cutler Group, LP	18,573	0	1,600	55,085	6,611	700	28,374	32,956
Cutter & Company, Inc	23,322	73,345	95,181	96,286	99,557	112,475	84,709	78,813
CX Institutional, L L C	0	0	0	92	78	107	0	0
Cypress Asset Management, Inc	9,906	6,744	0	0	0	0	0	0
Cypress Capital Management, LLC (WY)	750	750	750	0	0	0	0	0
D E Shaw & Co , L P	14,483	56,027	97,189	315,183	169,510	691,948	211,879	1,955,634
D L Carlson Investment Group, Inc	0	0	0	0	0	0	0	38,350
D A Davidson & Co	107,086	113,945	78,652	90,518	65,584	78,567	117,383	0
Dacheng Fund Management Co , Ltd	1,690	1,690	1,690	1,690	1,481	1,481	3,018	3,018
Daiwa Asset Management (Singapore) Ltd	5,904	5,955	6,986	6,986	6,986	7,052	7,216	7,216
Daiwa Asset Management Co , Ltd	13,356	14,296	14,296	15,046	15,046	15,366	15,366	16,266

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018

Dalton Investments LLC	0	0	0	0	0	0	0	15,825
Danske Bank	3,539	3,539	3,539	3,539	3,539	3,539	0	0
Danske Bank Asset Management	5,163	5,963	9,263	6,063	52,881	67,728	82,152	34,418
Danske Invest Management Company S A	0	0	0	0	0	0	0	0
Davenport Asset Management	0	0	0	0	0	8,962	5,963	0
David Lerner Associates, Inc	0	2,000	2,000	3,000	3,000	3,000	3,000	3,000
Davidson Investment Advisors, Inc	4,103	4,103	4,103	4,103	4,103	0	0	0
Davis Selected Advisers, L P	17,611,450	19,676,467	19,575,752	21,873,634	20,985,516	20,998,334	20,650,094	23,869,802
Day Hagan Asset Management	0	0	0	0	20,077	28,920	29,600	30,856
DB Platinum Advisors	9,900	9,129	8,874	8,925	9,052	9,311	9,311	9,311
DBX Advisors LLC	0	0	0	0	0	0	0	0
Decatur Capital Management, Inc	0	0	0	0	0	0	0	0
Deere & Company	26,308	25,490	25,490	25,490	0	0	0	0
Degroof Petercam Asset Management	12,507	12,507	12,507	12,507	18,307	18,307	17,145	17,145
Deka Investment GmbH	223,353	321,021	333,956	357,567	328,907	342,002	342,002	397,913
Delta Asset Management, LLC	261,505	264,922	260,896	282,148	286,837	292,924	276,403	293,954
Delta Capital Management, L L C	34,256	33,656	33,156	32,556	32,036	74,056	0	0
Delta Lloyd Asset Management N V NLE	24,936	31,553	0	0	104,100	104,100	104,100	0
DePrince, Race & Zollo, Inc	0	0	0	0	0	4,500	0	0
Desjardins Global Asset Management	215	215	0	0	0	0	0	0
Deutsche Asset Management (Japan) Ltd	1,000	1,000	0	0	0	0	0	0
Deutsche Asset Management Americas	303,704	321,226	90,299	463,266	277,061	190,704	335,596	475,207
Deutsche Bank AG (Germany)	1,405	1,482	0	0	0	0	0	0
Deutsche Bank Securities Inc	140,101	31,420	24,820	55,504	137,723	49,323	287,287	49,660
Diamond Hill Capital Management Inc	0	0	0	0	191	0	0	365
Diem Client Partner AG	0	0	0	0	4	4	11,000	11,000
Dimensional Fund Advisors, L P	1,900,371	1,856,612	1,409,582	1,164,824	1,221,294	1,547,874	2,037,690	2,132,014
Dimensional Fund Advisors, Ltd	5,741	10,626	10,668	11,012	25,911	26,618	38,088	44,453
DJE Kapital AG	0	0	0	0	0	0	0	0
DNB Asset Management AB	7,900	8,400	9,400	9,400	9,400	9,400	9,400	9,400
DNB Asset Management AS	30,516	33,416	37,816	44,916	43,616	55,316	45,916	46,616
Dodge & Cox	29,097,064	29,142,376	28,896,095	28,770,336	29,922,731	29,938,979	31,343,245	36,978,997
Donoghue Forlines LLC	0	0	30	0	0	0	0	0
D'Orazio & Associates, Inc	474	474	474	474	474	474	474	474
Dorsey, Wright & Associates, LLC	0	0	6,387	0	0	0	0	0
DoubleLine Capital LP	0	2,463	2,463	3,741	3,741	3,741	3,515	0
Douglas C Lane & Associates	21,592	21,582	21,432	21,332	21,332	21,262	21,298	52,957
Dowling & Yahnke, LLC	9,058	8,558	8,428	8,503	6,663	5,954	4,969	0
Dreman Value Management, L L C NLE	4,998	4,330	3,648	0	3,648	0	0	26,748
DRW Securities, LLC	0	0	0	0	0	0	5,328	0
Duality Group	0	0	0	0	0	0	0	0
Dubuque Bank and Trust Company	25	25	25	25	25	25	125	25
Dueemme International Luxembourg S A NLE	4,099	11,099	11,099	9,923	9,923	9,923	9,923	9,923
Duncker, Streett & Co , L L C	275	100	100	100	100	100	100	100
DuPont Capital Management Corporation	0	0	0	0	4,176	8,405	12,948	15,479
Duquesne Family Office LLC	0	0	0	0	0	0	903,000	0
DUX Inversores, SGHC, S A	0	0	16,247	0	0	0	0	0
DWS Far Eastern Investments Limited	4,262	4,262	0	0	0	0	0	0
DWS International GmbH	0	0	0	0	0	0	0	44,493
DWS Investment GmbH	210,424	205,595	207,160	551,456	238,669	280,840	107,792	514,888
DWS Investment Management Americas, Inc	221,377	274,365	209,968	209,360	212,708	211,347	138,239	125,436

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020
Dalton Investments LLC	14,326	6,878	5,436	5,436	5,436	5,436	5,436	5,436
Danske Bank	0	0	0	0	0	0	0	0
Danske Bank Asset Management	29,439	36,933	44,646	47,568	64,109	69,085	75,685	73,630
Danske Invest Management Company S A	0	0	0	0	0	4,271	7,673	14,273
Davenport Asset Management	0	0	0	0	0	0	0	0
David Lerner Associates, Inc	3,000	0	0	0	0	0	0	0
Davidson Investment Advisors, Inc	0	0	0	0	0	0	0	0
Davis Selected Advisers, L P	23,953,548	24,053,664	22,882,206	24,151,466	23,008,783	21,996,556	20,131,629	20,789,074
Day Hagan Asset Management	32,083	32,232	0	0	0	0	0	0
DB Platinum Advisors	9,311	9,311	9,311	9,311	0	0	0	0
DBX Advisors LLC	3,011	3,541	5,263	32,673	38,440	43,608	48,275	50,161
Decatur Capital Management, Inc	0	0	0	152,932	0	0	0	0
Deere & Company	0	0	0	0	0	0	0	0
Degroof Petercam Asset Management	17,145	17,145	17,145	17,145	17,145	17,145	17,145	17,145
Deka Investment GmbH	382,832	289,707	276,888	276,888	259,904	268,776	299,759	340,663
Delta Asset Management, LLC	290,998	285,989	172,781	148,478	142,410	135,580	437	104
Delta Capital Management, L L C	0	0	0	0	0	0	0	0
Delta Lloyd Asset Management N V NLE	0	0	0	0	0	0	0	0
DePrince, Race & Zollo, Inc	0	0	0	0	0	0	0	0
Desjardins Global Asset Management	0	0	0	0	374	464	392	189
Deutsche Asset Management (Japan) Ltd	0	0	0	0	0	0	0	0
Deutsche Asset Management Americas	529,366	274,546	346,658	38,967	97,943	90,924	370,103	4,445
Deutsche Bank AG (Germany)	0	0	0	0	0	0	0	0
Deutsche Bank Securities Inc	77,219	43,905	119,971	706	4,140	0	0	0
Diamond Hill Capital Management Inc	203	315	398	398	398	398	398	398
Diem Client Partner AG	11,000	11,000	11,000	11,000	6,000	6,000	0	0
Dimensional Fund Advisors, L P	3,644,974	4,545,996	5,491,208	5,625,402	5,652,597	6,633,394	7,229,725	8,360,769
Dimensional Fund Advisors, Ltd	48,199	52,373	75,354	67,231	390,981	398,426	410,106	422,237
DJE Kapital AG	0	0	0	0	28,000	0	0	0
DNB Asset Management AB	9,400	10,300	7,100	4,800	3,600	5,600	5,600	9,700
DNB Asset Management AS	48,316	51,716	49,743	45,119	40,279	47,542	50,400	0
Dodge & Cox	39,185,826	39,601,676	52,383,637	55,348,135	55,493,689	55,404,747	55,089,363	54,741,657
Donoghue Forlines LLC	0	0	0	0	0	0	0	0
D'Orazio & Associates, Inc	474	474	474	474	474	474	474	474
Dorsey, Wright & Associates, LLC	0	0	0	0	0	0	0	0
DoubleLine Capital LP	0	0	0	0	0	0	0	0
Douglas C Lane & Associates	135,000	174,116	351,218	387,234	505,074	794,547	1,192,159	1,392,345
Dowling & Yahnke, LLC	0	4,784	0	0	0	0	0	0
Dreman Value Management, L L C NLE	26,748	26,748	26,748	26,748	26,748	0	0	0
DRW Securities, LLC	0	0	0	0	0	0	0	0
Duality Group	0	0	121,770	0	0	0	0	0
Dubuque Bank and Trust Company	0	0	0	0	0	0	0	0
Dueemme International Luxembourg S A NLE	9,923	9,923	9,923	9,923	0	0	0	0
Duncker, Streett & Co , L L C	100	50	50	0	0	0	336	600
DuPont Capital Management Corporation	17,687	17,262	24,227	26,927	12,800	12,800	12,800	21,800
Duquesne Family Office LLC	0	0	0	0	0	0	0	0
DUX Inversores, SGHC, S A	0	0	0	0	0	0	0	0
DWS Far Eastern Investments Limited	0	0	0	0	0	0	0	0
DWS International GmbH	55,291	82,226	61,456	79,378	81,790	92,238	116,576	117,009
DWS Investment GmbH	64,197	65,244	61,771	75,557	61,172	62,210	60,367	61,285
DWS Investment Management Americas, Inc	137,796	142,849	87,468	129,825	145,582	58,186	60,497	64,389

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018
DWS Investments Hong Kong Limited	0	0	0	0	0	0	0	0
DWS Investments UK Limited	0	0	0	0	0	1,450	207,850	227,925
Dynamic Capital Management LLC	47,646	0	86,530	9,857	0	0	0	0
Dynamic Technology Lab Pte Ltd	8,648	8,648	8,648	8,648	8,648	0	11,394	0
Dynamic Wealth Advisors	0	3,240	0	0	0	0	0	0
DZ Bank AG Deutsche Zentral-Genossenschaftsbank	0	0	26,964	29,700	21,850	15,000	15,000	48,090
E Fund Management Co Ltd	0	0	0	0	0	0	0	0
E Öhman J:or Fonder AB	8,500	8,500	10,300	12,800	11,500	11,500	11,500	8,400
Eagle Capital Management L L C	4,300	4,300	4,300	4,300	4,300	0	0	0
Eagle Ridge Investment Management LLC	0	0	3,984	4,234	4,784	4,634	0	0
EagleClaw Capital Management, LLC	37,785	40,952	40,104	42,231	42,233	44,610	47,336	47,543
EARNEST Partners, LLC	345,009	337,638	249,708	201,530	258,726	244,620	232,455	242,769
Eastspring Investments (Singapore) Limited	660,300	660,300	910,800	1,331,900	1,584,500	1,584,500	1,782,590	2,223,100
Eaton Vance Management	294,284	295,230	239,890	225,040	222,879	222,877	219,332	217,791
Edge Capital Partners, LLC	0	0	3,440	3,984	4,203	4,184	2,274	2,637
Edge Wealth Management LLC	150	150	150	0	0	0	0	0
Edgestream Partners, L P	0	0	0	0	0	0	0	0
Edinburgh Partners Limited	1,448,460	1,194,891	1,106,529	717,544	689,990	815,956	781,068	798,606
Edmond de Rothschild (Europe)	0	0	0	0	0	0	0	10,495
Edmond de Rothschild Asset Management (France) S A	0	0	584,000	871,500	881,500	953,414	1,090,554	1,117,664
Edmond De Rothschild Asset Management (Luxembourg)	0	0	0	0	0	0	0	780
Edward Jones Trust Company	6,012	5,545	4,774	4,973	4,875	4,800	0	0
Element Capital Management, LLC	17,397	0	0	0	0	0	0	0
Elgethun Capital Management, Inc	0	0	345	0	0	0	0	0
Elkhorn Investments, LLC NLE	0	0	15,053	0	0	0	0	47,928
Ellevest, Inc	0	0	0	0	0	0	0	0
Ellington Management Group, L L C	0	13,200	0	0	0	0	0	0
Elm Ridge Capital Management, LLC	383,716	342,115	342,115	352,385	339,051	306,985	306,985	343,958
Employees Retirement System of Texas	23,000	23,000	23,000	36,000	35,000	22,000	21,000	19,000
Emso Asset Management Limited	0	0	0	0	0	0	8,728	0
Encompass Capital Advisors, LLC	300,000	0	0	0	0	0	0	0
Endurance Wealth Management, Inc	150	150	150	150	150	150	150	150
Energy Opportunities Capital Management, LLC	41,870	40,970	41,195	40,145	40,045	30,570	25,975	0
Engineers Gate Manager, L P	0	48,676	58,213	6,100	24,077	9,371	10,642	0
ENISO Partners AG	0	0	0	0	0	0	0	0
Enlightenment Research, LLC	0	0	0	0	0	0	0	0
Ensign Peak Advisors, Inc	0	0	0	0	0	0	0	0
Enterprise Financial Services Corp	294	436	336	294	294	294	294	110
Enterprise Trust & Investment Company	0	0	0	0	0	0	0	0
Envestnet Asset Management, Inc	82,454	57,000	56,687	65,330	67,774	72,558	67,983	49,641
EP Wealth Advisors, LLC	0	0	0	0	0	0	0	0
EPG Wealth Management LLC	0	0	0	0	0	0	0	0
Epoch Investment Partners, Inc	76,273	73,813	68,963	68,963	57,908	53,911	0	0
Equitable Trust Company	0	0	0	0	0	0	0	0
Erste Asset Management GmbH	15,000	15,000	15,000	15,000	11,000	11,000	8,000	8,000
ERSTE-SPARINVEST Kapitalanlagegesellschaft mbH NLE	12,000	15,000	15,000	15,000	11,000	8,000	8,000	0
Esfera Capital Gestion SGIIC, S A	0	0	0	0	1,497	0	0	0
Essex Financial Services, Inc	5,134	4,611	4,052	4,054	0	0	0	0
Essex Investment Management Company, LLC	0	0	89,478	78,063	0	27,884	28,846	0
Essex Savings Bank	0	0	0	0	0	0	0	0
Estabrook Capital Management, L L C (Grove Creek)	1,660	1,660	1,660	1,520	1,520	1,520	1,520	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020
DWS Investments Hong Kong Limited	0	0	808	808	808	0	0	0
DWS Investments UK Limited	228,383	215,418	234,115	357,891	247,228	250,979	258,723	251,578
Dynamic Capital Management LLC	0	0	0	0	0	0	0	0
Dynamic Technology Lab Pte Ltd	0	23,476	43,167	0	18,730	0	0	306,208
Dynamic Wealth Advisors	0	0	0	0	0	0	0	0
DZ Bank AG Deutsche Zentral-Genossenschaftsbank	15,000	15,000	15,000	15,000	16,500	16,500	2,000	2,685
E Fund Management Co Ltd	340	340	377	377	346	346	411	411
E Ohman J:or Fonder AB	0	0	0	0	0	0	0	0
Eagle Capital Management L L C	4,300	4,300	0	0	0	0	0	0
Eagle Ridge Investment Management LLC	0	0	0	0	0	0	0	0
EagleClaw Capital Management, LLC	47,049	46,156	43,773	43,481	45,315	46,727	33,369	31,322
EARNEST Partners, LLC	239,360	236,547	226,673	233,906	226,723	218,457	561	561
Eastspring Investments (Singapore) Limited	1,716,600	1,586,200	1,895,800	1,889,700	1,559,000	1,446,100	1,658,000	820,750
Eaton Vance Management	215,191	214,182	213,359	212,373	209,481	32,771	32,331	31,093
Edge Capital Partners, LLC	2,637	2,637	2,637	2,637	2,637	2,637	2,637	2,637
Edge Wealth Management LLC	0	0	0	0	0	0	0	0
Edgestream Partners, L P	0	0	19,637	0	0	41,571	0	0
Edinburgh Partners Limited	897,871	520,118	489,433	422,606	395,214	557,341	557,341	0
Edmond de Rothschild (Europe)	23,362	20,085	20,085	20,085	20,085	20,085	20,085	20,085
Edmond de Rothschild Asset Management (France) S A	1,117,664	985,664	1,064,854	878,354	694,354	642,154	128,004	16,000
Edmond De Rothschild Asset Management (Luxembourg)	11,790	10,605	10,605	10,605	10,605	10,605	10,605	10,605
Edward Jones Trust Company	0	0	0	0	0	0	0	0
Element Capital Management, LLC	0	10,083	0	0	0	56,701	0	0
Elgethun Capital Management, Inc	0	0	0	0	0	0	0	0
Elkhorn Investments, LLC NLE	47,928	47,928	47,928	47,928	47,928	47,928	0	0
Ellevest, Inc	0	0	0	0	0	13	13	2,314
Ellington Management Group, L L C	0	0	19,700	0	0	0	12,300	0
Elm Ridge Capital Management, LLC	342,035	302,570	300,644	227,274	266,283	157,679	105,881	0
Employees Retirement System of Texas	19,000	17,000	17,000	17,000	16,000	0	0	44,000
Emso Asset Management Limited	0	0	0	0	0	0	0	0
Encompass Capital Advisors, LLC	0	0	0	0	1,000,000	0	0	0
Endurance Wealth Management, Inc	150	150	150	150	150	150	150	150
Energy Opportunities Capital Management, LLC	0	0	0	0	0	0	0	0
Engineers Gate Manager, L P	0	0	206,418	182,558	40,233	0	13,648	433,460
ENISO Partners AG	0	0	1,700	0	0	0	0	0
Enlightenment Research, LLC	0	0	6,100	0	0	0	0	0
Ensign Peak Advisors, Inc	0	0	0	0	0	0	121,150	190,602
Enterprise Financial Services Corp	110	110	80	41	74	171	119	460
Enterprise Trust & Investment Company	0	0	0	0	42,700	41,300	38,950	38,150
Envestnet Asset Management, Inc	49,276	0	40,106	268,390	59,820	30,510	18,857	44,581
EP Wealth Advisors, LLC	0	0	0	0	0	8,900	0	0
EPG Wealth Management LLC	0	0	0	0	0	0	196	207
Epoch Investment Partners, Inc	0	0	0	0	0	0	0	0
Equitable Trust Company	0	8,400	0	0	0	0	0	0
Erste Asset Management GmbH	8,000	8,000	8,000	12,000	12,000	0	0	0
ERSTE-SPARINVEST Kapitalanlagegesellschaft mbH NLE	0	0	0	0	0	0	0	0
Esfera Capital Gestion SGIIC, S A	0	0	0	0	0	0	0	0
Essex Financial Services, Inc	0	0	0	0	0	0	0	0
Essex Investment Management Company, LLC	0	0	230	230	230	0	0	0
Essex Savings Bank	0	0	213	244	244	0	0	0
Estabrook Capital Management, L L C (Grove Creek)	0	0	0	0	0	0	0	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018

Ethenea Independent Investors S A	0	0	0	0	0	0	0	0
Euclid Advisors LLC NLE	6,200	0	0	0	0	0	0	0
Eurizon Capital S A	46	46	26,530	7,080	7,080	7,080	7,080	7,080
Eurizon Capital SGR S p A	0	0	0	0	0	0	0	0
Evercore Wealth Management, LLC	7,084	7,084	8,933	8,739	7,599	7,599	6,299	6,299
Everence Capital Management, Inc	9,908	9,908	11,378	11,378	11,378	11,378	17,506	17,506
Evergreen Capital Management, LLC	0	0	0	0	0	0	0	27,575
Evli Fund Management Company Ltd	0	0	0	3,394	4,319	4,724	6,519	7,351
Evolve Advisors	0	0	0	0	0	0	0	0
Exane Derivatives	5,506	5,127	1,635	1,850	1,204	33	30	30
Exchange Traded Concepts, LLC	0	0	0	0	0	0	0	0
Executive Wealth Management, LLC	0	0	0	0	0	0	0	0
Exeter Financial, LLC	0	0	0	0	0	0	26,720	27,225
ExodusPoint Capital Management, LP	0	0	0	0	0	0	0	0
Exponential ETFs	0	0	0	0	0	0	81	234
ExxonMobil Investment Management, Inc	97,984	96,880	87,825	84,315	73,030	69,564	60,570	58,396
F & V Capital Management, L L C	0	0	5,090	5,090	0	0	0	0
Fairbanks Capital Management, Inc	0	0	0	0	38,062	40,666	35,243	31,266
Fairfield, Bush & Co	0	10,600	10,600	8,600	6,900	6,200	0	3,500
Fairpointe Capital LLC	11,950	9,250	7,250	7,450	0	0	0	0
Falcon Point Capital, LLC	0	0	3,450	0	0	0	0	0
Farmhouse Investment Management LLC NLE	0	0	0	279,250	372,500	342,500	347,500	399,500
FCM Investments, LP NLE	1,200	1,200	1,200	1,200	0	0	0	0
FDO Partners, LLC	13,364	0	0	0	0	9,879	5,477	5,477
FDX Advisors, Inc	0	0	6,116	4,853	19,470	29,087	30,470	28,774
Federated Hermes Equity Management Company of Pennsylvania	388,611	222,189	8,085	7,669	7,540	8,605	1,676	857
Federated Hermes Global Investment Management Corp	0	6,749	0	0	0	0	0	0
Federated Hermes Investment Management Company	65,539	42,506	0	0	0	1,199	1,199	1,199
Federated Hermes MDTA LLC	3,068	44,208	151,996	502	0	0	0	0
Feltz WealthPLAN, Inc	4,386	2,194	2,194	425	425	0	0	0
Ferguson Wellman Capital Management, Inc	5,529	5,529	5,529	5,529	5,729	5,229	0	0
Feri Trust GmbH	0	0	0	0	0	0	0	0
Ferris Capital, LLC	0	0	0	0	1,906	0	0	1,986
FIC Capital, Inc NLE	32,986	35,614	35,719	0	0	0	0	0
Fidelity Institutional Asset Management	1,797,081	1,605,621	1,392,032	649,751	604,622	639,595	616,473	547,920
Fidelity International	4,082,312	4,442,449	5,137,355	5,187,065	4,512,590	4,262,483	4,174,267	4,050,930
Fidelity Investments Canada ULC	8,688	6,278	4,467	0	0	0	0	28
Fidelity Management & Research Company LLC	19,431,932	17,832,461	14,205,255	14,059,024	14,508,251	12,997,295	9,771,150	7,931,444
Fideuram Asset Management (Ireland) dac	46,724	48,606	45,573	43,320	42,044	41,857	41,857	0
Fiduciary Trust Company	27,104	25,941	23,383	21,691	20,470	19,670	18,101	18,378
Fieldpoint Private Bank & Trust	0	0	0	2,150	2,150	2,150	2,050	2,050
Fiera Capital Corporation	7,600	222,795	263,445	19,095	18,220	7,225	7,225	7,225
Fiera Capital Inc	0	0	0	0	0	0	1,907	0
FIL Gestion	0	0	0	0	0	0	0	0
Financial Advisors Network, Inc	0	0	24	24	0	0	0	0
Financial Architects Inc	47	47	0	900	900	900	0	75
Financial Engines Advisors LLC	0	0	0	0	0	0	36	0
FineMark National Bank & Trust	732	632	632	0	0	0	0	0
FinEx Capital Management LLP	145	146	147	148	147	147	147	147
Finreon AG	0	0	0	0	0	0	0	0
FinTrust Capital Advisors, LLC	0	0	0	0	0	0	0	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020

Ethenea Independent Investors S A	0	38,938	0	0	0	0	0	0
Euclid Advisors LLC NLE	0	0	0	0	0	0	0	0
Eurizon Capital S A	7,080	7,080	46,100	28,356	23,056	24,244	0	1,785
Eurizon Capital SGR S p A	0	0	0	0	46,723	46,723	61,532	61,532
Evercore Wealth Management, LLC	12,364	12,278	0	6,891	0	0	0	0
Everence Capital Management, Inc	23,276	19,186	19,186	21,572	21,572	21,572	36,933	10,108
Evergreen Capital Management, LLC	36,295	36,102	0	0	0	0	0	0
Evli Fund Management Company Ltd	14,727	12,099	0	0	0	0	0	0
Evolve Advisors	0	0	0	0	0	1,269	1,193	1,140
Exane Derivatives	30	0	0	0	84,821	29	29	29
Exchange Traded Concepts, LLC	0	0	0	0	5,478	5,649	138	393
Executive Wealth Management, LLC	0	0	53	0	0	0	0	0
Exeter Financial, LLC	25,850	26,250	32,655	35,355	32,955	15,900	10,255	0
ExodusPoint Capital Management, LP	0	0	0	6,303	0	0	33,764	19,426
Exponential ETFs	253	295	705	755	1,909	2,494	1,096	3,057
ExxonMobil Investment Management, Inc	58,396	58,396	58,396	58,396	58,396	58,396	58,396	0
F & V Capital Management, L L C	0	0	0	0	0	0	0	0
Fairbanks Capital Management, Inc	31,266	31,266	23,270	23,141	21,727	19,472	13,722	0
Fairfield, Bush & Co	0	0	0	0	0	0	0	0
Fairpointe Capital LLC	0	0	0	0	0	0	0	0
Falcon Point Capital, LLC	0	0	0	0	0	0	0	0
Farmhouse Investment Management LLC NLE	399,500	364,750	364,750	364,750	364,750	364,750	364,750	364,750
FCM Investments, LP NLE	0	0	0	0	0	0	0	0
FDO Partners, LLC	5,477	5,477	5,477	5,477	5,477	5,477	0	0
FDX Advisors, Inc	29,699	0	0	0	0	0	0	0
Federated Hermes Equity Management Company of Pennsylvania	1,596	1,573	6,018	5,197	4,857	5,189	4,199	40,737
Federated Hermes Global Investment Management Corp	0	0	0	0	0	0	0	0
Federated Hermes Investment Management Company	0	0	0	0	0	0	0	0
Federated Hermes MDTA LLC	0	0	0	0	0	0	0	2,859
Feltz WealthPLAN, Inc	0	0	0	0	0	0	0	0
Ferguson Wellman Capital Management, Inc	4,581	4,601	0	0	0	0	0	0
Feri Trust GmbH	0	6,492	6,492	6,492	2,688	6,492	6,492	6,492
Ferris Capital, LLC	1,986	1,906	1,826	1,826	0	0	0	0
FIC Capital, Inc NLE	0	0	0	0	0	0	0	0
Fidelity Institutional Asset Management	0	0	0	0	0	0	0	351,600
Fidelity International	3,463,962	3,096,295	2,298,328	2,294,064	2,115,577	0	0	0
Fidelity Investments Canada ULC	0	0	0	0	0	0	0	0
Fidelity Management & Research Company LLC	897,041	1,050,091	1,102,528	1,228,048	373,247	840,626	582,589	3,088,727
Fideuram Asset Management (Ireland) dac	0	0	0	0	0	0	0	0
Fiduciary Trust Company	18,156	17,726	16,052	15,032	12,477	12,441	12,411	12,594
Fieldpoint Private Bank & Trust	2,050	2,050	2,050	1,950	1,950	1,350	0	0
Fiera Capital Corporation	3,866	4,581	0	0	0	787	787	0
Fiera Capital Inc	0	0	0	0	0	0	0	0
FIL Gestion	0	442	83	0	0	0	0	0
Financial Advisors Network, Inc	0	0	0	0	0	0	0	0
Financial Architects Inc	75	250	0	100	300	0	0	0
Financial Engines Advisors LLC	0	0	0	0	0	0	0	0
FineMark National Bank & Trust	0	0	0	0	0	0	0	0
FinEx Capital Management LLP	147	227	227	313	313	313	313	408
Finreon AG	0	0	0	0	0	0	0	2,296
FinTrust Capital Advisors, LLC	0	0	809	781	500	0	0	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018

First Allied Asset Management, Inc	14,294	7,611	13,278	15,107	13,552	9,146	7,807	8,022
First American Bank	0	4,933	4,933	0	0	0	0	0
First Asset Investment Management, Inc NLE	0	0	0	0	29,063	0	0	0
First City Capital Management, Inc	3,697	3,697	3,697	3,922	0	6,632	6,632	6,632
First Command Bank	0	0	0	0	0	0	0	0
First Command Financial Services, Inc	0	0	0	0	0	0	0	0
First Financial Corp	1,333	1,148	548	378	378	378	278	223
First Horizon Advisors, Inc	868	676	676	5,499	5,097	5,097	1,077	1,067
First Interstate Bank	51,630	48,506	46,547	43,640	42,025	44,742	45,234	44,365
First Manhattan Company	11,848	11,848	11,793	11,793	12,255	11,155	10,309	10,309
First Merchants Trust Company	15,986	13,912	15,751	19,805	25,319	0	5,353	0
First Midwest Trust Company	39,363	26,383	26,374	26,265	26,142	26,418	26,368	26,273
First National Bank of Omaha	0	4,000	0	0	0	0	0	0
First Niagara Private Client Services NLE	3,727	3,727	3,727	3,727	3,727	0	0	0
First Premier Bank	0	500	0	0	0	0	0	0
First Quadrant L P	354,500	250,927	249,092	245,367	13,007	8,106	8,106	8,106
First Republic Investment Management, Inc	22,680	23,906	21,655	34,596	35,243	40,487	30,325	33,674
First Sentier Investments (U K) Ltd	0	0	0	54	54	54	54	54
First Trust Advisors L P	0	321,660	747,195	284,198	107,108	66,985	238,432	526,582
First Washington Corporation	160	160	160	160	160	160	160	160
Fischer Francis Trees & Watts, Inc NLE	31,729	27,837	26,255	33,526	33,526	0	0	0
Fisher Investments	0	0	0	0	0	0	0	0
Fjärde AP-Fonden	73,122	75,352	67,365	61,727	52,785	53,801	67,085	85,201
Flagship Harbor Advisors LLC	0	0	0	0	0	0	0	0
Flinton Capital Management LLC	0	0	10,438	14,076	15,368	62,560	91,154	37,468
Florida State Board of Administration	566,147	553,651	559,089	559,416	560,351	560,521	543,013	530,242
Flossbach von Storch AG	0	0	0	0	0	4,553	0	0
FMA Advisory, Inc	1,195	1,195	1,195	0	0	0	0	0
FNY Capital Management LP	50	0	0	0	150	0	0	0
FNY Investment Advisers LLC	0	0	500	3,000	0	0	0	0
Focused Wealth Management, Inc	35	35	70	70	70	70	0	0
Folger Hill Asset Management LLC NLE	0	0	4,277	12,653	16,919	0	0	0
Folger Nolan Fleming Douglas Capital Management, Inc (CMI)	33,804	33,639	33,639	19,907	19,692	19,257	11,377	10,262
Fondsfinans Kapitalforvaltning AS	2,000	2,000	0	0	0	0	0	0
Formula Growth Ltd	0	283,700	306,100	498,100	537,750	158,202	0	0
Första AP-Fonden	0	0	84,800	84,800	84,800	84,800	0	0
Fortis Advisors, LLC	0	0	0	0	0	125	125	125
Fosun International Ltd	0	0	0	0	0	0	0	0
Foundation Asset Management, LP	0	0	0	0	0	244,389	0	0
Foundation Resource Management, Inc	0	0	0	0	0	0	8,819	17,634
Founders Bank & Trust NLE	80	80	0	0	0	0	0	0
Founders Capital Management, Inc	0	0	0	120	120	120	120	120
Fox Run Management, L L C	6,000	0	0	8,900	0	0	0	22,181
Foyston, Gordon & Payne Inc	187,662	163,220	144,210	139,199	138,045	119,239	130,158	0
Franklin Advisers, Inc	4,710	4,210	3,000	2,890	0	0	203,380	201,680
Franklin Advisory Services, LLC	0	0	0	0	0	0	0	0
Franklin Equity Group	32,911	29,618	27,618	27,223	26,009	20,809	19,159	15,884
Franklin Mutual Advisers, LLC	4,159,494	3,812,736	1,926,574	4,898,919	6,128,426	6,113,379	0	0
Franklin Templeton Investment Management Ltd	540,278	413,908	409,688	434,948	423,948	419,248	444,204	274,344
Franklin Templeton Investments (Asia) Ltd	0	0	0	0	0	0	0	0
Franklin Templeton Investments Australia Ltd NLE	118,389	116,819	116,819	115,889	114,369	113,459	207,909	258,609

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020
First Allied Asset Management, Inc	8,128	9,931	0	6,272	0	0	0	0
First American Bank	0	0	0	0	0	0	0	0
First Asset Investment Management, Inc NLE	0	0	0	0	0	0	0	0
First City Capital Management, Inc	6,632	6,632	0	0	0	0	0	0
First Command Bank	385	385	385	385	385	385	385	0
First Command Financial Services, Inc	385	385	385	385	385	385	385	0
First Financial Corp	0	0	0	0	0	0	0	0
First Horizon Advisors, Inc	1,234	1,062	562	562	562	16	16	16
First Interstate Bank	1,831	1,294	1,287	834	811	811	811	0
First Manhattan Company	9,499	9,499	8,899	8,899	7,927	7,927	2,505	2,505
First Merchants Trust Company	10,284	11,095	9,311	33,920	35,276	0	0	0
First Midwest Trust Company	25,827	25,527	24,583	20,713	19,813	18,763	17,306	17,424
First National Bank of Omaha	0	0	0	0	0	0	0	0
First Niagara Private Client Services NLE	0	0	0	0	0	0	0	0
First Premier Bank	0	0	0	0	0	90	90	590
First Quadrant L P	8,106	8,106	8,106	8,106	8,106	8,106	8,106	8,106
First Republic Investment Management, Inc	25,312	26,751	22,834	21,012	18,999	14,861	12,297	11,850
First Sentier Investments (U K) Ltd	54	54	54	54	54	54	0	0
First Trust Advisors L P	727,185	656,607	336,181	197,525	497,843	621,358	507,276	509,006
First Washington Corporation	160	160	160	160	160	160	160	0
Fischer Francis Trees & Watts, Inc NLE	0	0	0	0	0	0	0	0
Fisher Investments	14,546	19,963	21,238	345,496	365,616	388,638	401,353	418,413
Fjärde AP-Fonden	64,901	62,201	50,101	71,542	75,942	86,042	77,142	104,042
Flagship Harbor Advisors LLC	191	192	44	44	44	0	0	0
Flinton Capital Management LLC	21,012	35,836	53,244	38,624	25,568	31,688	31,688	31,688
Florida State Board of Administration	558,840	559,007	558,220	550,660	543,311	544,921	523,787	523,787
Flossbach von Storch AG	0	0	0	0	0	0	0	0
FMA Advisory, Inc	0	0	0	0	0	0	0	0
FNY Capital Management LP	0	0	0	0	0	0	0	0
FNY Investment Advisers LLC	0	1,584	200	0	0	0	0	100
Focused Wealth Management, Inc	0	0	0	0	0	0	0	0
Folger Hill Asset Management LLC NLE	0	0	0	0	0	0	0	0
Folger Nolan Fleming Douglas Capital Management, Inc (CMI)	7,432	5,110	0	0	0	0	0	0
Fondsfinans Kapitalforvaltning AS	0	0	0	0	0	0	0	0
Formula Growth Ltd	0	0	0	0	0	0	0	0
Första AP-Fonden	0	0	0	0	0	0	0	0
Fortis Advisors, LLC	1,100	1,100	1,100	975	975	0	0	0
Fosun International Ltd	0	25,000	28,000	28,000	28,000	28,000	28,000	24,000
Foundation Asset Management, LP	0	0	0	0	0	0	0	0
Foundation Resource Management, Inc	19,309	19,884	23,499	28,984	29,844	31,244	65,744	73,869
Founders Bank & Trust NLE	0	0	0	0	0	0	0	0
Founders Capital Management, Inc	0	0	0	0	0	0	0	0
Fox Run Management, L L C	0	8,030	0	0	0	0	0	15,972
Foyston, Gordon & Payne Inc	0	0	0	0	0	0	0	0
Franklin Advisers, Inc	245,480	245,480	244,280	331,280	331,280	471,520	471,520	171,461
Franklin Advisory Services, LLC	0	0	0	3,576	3,144	3,024	3,552	4,104
Franklin Equity Group	14,734	13,141	8,775	7,999	7,719	5,824	4,311	3,364
Franklin Mutual Advisers, LLC	0	0	0	0	0	0	0	0
Franklin Templeton Investment Management Ltd	277,164	273,564	355,271	512,749	365,111	400,711	157,652	0
Franklin Templeton Investments (Asia) Ltd	0	0	0	0	2,000	2,000	2,300	2,300
Franklin Templeton Investments Australia Ltd NLE	256,819	271,099	270,509	377,859	294,349	361,929	523,198	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018

Franklin Templeton Investments Corporation	638,095	567,476	562,960	590,399	595,096	676,666	531,187	532,553
Franklin Templeton Japan Co , Ltd	14,200	28,900	24,400	22,800	0	0	0	0
Franklin Templeton Portfolio Advisors, Inc	0	0	0	0	0	0	0	0
Franklin Templeton SinoAm Securities Investment Management	7,898	7,898	6,956	6,956	4,543	4,543	5,212	5,212
Franklin, Parlapiano, Turner & Welch, LLC	3,145	3,145	3,145	3,145	3,145	3,145	3,145	0
Front Street Capital, Inc NLE	0	14,410	11,360	0	0	0	0	0
Frontier Wealth Management LLC	0	39,000	39,400	39,500	35,700	5,635	0	0
Frost Investment Advisors, LLC	0	0	0	0	0	0	0	0
FSC Securites, Inc	10,532	0	0	0	0	0	0	0
FTC Capital GmbH	0	0	0	0	0	0	0	0
Fuh Hwa Securities Investment Trust Co , Ltd	0	0	9,055	9,055	0	0	0	0
Fukoku Mutual Life Insurance Co	1,400	1,200	1,300	1,300	1,300	1,300	1,300	2,300
Fuller & Thaler Asset Management Inc	0	0	0	2,600	0	0	0	0
Fulton Financial Advisors, N A	0	0	0	10,257	10,316	0	0	0
FundLogic SAS	0	0	4,496	4,143	0	0	0	0
Fusion Family Wealth LLC	0	0	230	0	0	0	0	0
FutureAdvisor	279	279	279	279	279	279	279	279
G W & Wade, LLC	0	3,398	3,399	0	0	0	0	0
GA Investment Management	0	0	0	0	0	0	0	0
Gabelli Funds, LLC	340,700	389,002	397,350	360,750	360,100	367,200	322,660	318,300
Gables Capital Management, Inc	0	0	0	0	0	0	0	0
GAM Capital Management (Switzerland) AG	0	0	0	0	0	0	0	37,897
GAM International Management Ltd	10,420	59,040	87,890	303,484	317,958	430,354	299,354	363,142
GAM Investment Management (Switzerland) AG	147,062	78,542	69,927	392,444	459,697	20,465	26,465	0
GAM Systematic LLP	0	0	0	0	0	0	0	0
Game Creek Capital, L P	0	0	0	0	0	0	0	0
Garcia Hamilton & Associates, L P	0	0	568	0	0	0	0	0
Gardner Lewis Asset Management, L P	0	66,221	83,021	0	0	0	0	0
Gargoyle Asset Management, LLC	0	0	0	0	0	0	0	0
Gary Goldberg Planning Services Inc	500	500	0	0	0	0	0	0
Gateway Investment Advisers, LLC	34,214	29,514	29,077	26,327	26,003	25,442	22,396	20,793
GE Asset Management Inc NLE	18,072	0	0	0	0	0	0	0
Gemmer Asset Management LLC	79	0	0	0	144	0	0	199
GenCap Portfolio Management	0	0	0	0	0	0	307	298
Geneos Wealth Management Inc	5,833	5,723	8,795	9,710	9,845	11,826	11,511	12,144
General American Investors Company, Inc	200,900	160,900	160,900	160,900	0	0	0	0
Generali Investments CEE, a s	14,437	12,779	12,770	12,770	12,770	12,770	21,870	21,870
Geneva Advisors, LLC NLE	0	6,498	13,305	0	0	0	0	0
Geode Capital Management, L L C	3,032,018	3,006,782	3,147,670	3,415,332	3,800,311	3,905,061	4,025,825	4,255,918
Gerald L Ray & Associates, Ltd NLE	19,392	12,642	12,200	12,850	12,900	15,900	15,900	15,900
Gesiuris Asset Management S G I I C , S A	0	0	0	0	0	0	0	0
Gesprofit S A S G I I C	39,212	39,210	35,804	35,805	35,643	35,728	35,710	35,608
GF Fund Management Co , Ltd	0	0	0	0	0	0	0	0
GFO Advisory Services, LLC	0	0	0	1,489	1,489	0	402	0
GHP Investment Advisors Inc	7,586	7,593	7,949	7,456	7,463	7,473	6,708	0
Gibraltar Capital Management, Inc	9,848	9,954	77,312	77,202	0	0	0	0
Gideon Capital Advisors, Inc	0	0	0	0	0	0	5,368	0
Gifford Fong Associates	0	0	0	0	0	0	0	25,000
Gilder Gagnon Howe & Co LLC	0	1,953,545	1,722,204	1,376,630	524,535	258,724	245,980	229,427
Girard Advisory Services, LLC	0	0	0	0	0	0	0	0
Glassman Wealth Services LLC	0	8	8	11	0	0	0	10

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020

Franklin Templeton Investments Corporation	532,543	532,549	621,650	831,183	705,240	777,570	714,710	130
Franklin Templeton Japan Co , Ltd	0	0	0	0	0	0	0	0
Franklin Templeton Portfolio Advisors, Inc	0	0	0	3,576	2,880	3,024	3,552	4,104
Franklin Templeton SinoAm Securities Investment Management	4,095	4,095	3,592	3,592	3,381	0	0	0
Franklin, Parlapiano, Turner & Welch, LLC	0	0	0	0	0	0	0	0
Front Street Capital, Inc NLE	0	0	0	0	0	0	0	0
Frontier Wealth Management LLC	0	0	0	0	0	0	0	0
Frost Investment Advisors, LLC	0	0	0	5,396	2,140	1,900	4,600	4,610
FSC Securites, Inc	0	0	0	0	0	0	0	0
FTC Capital GmbH	0	4,917	0	5,684	0	0	0	0
Fuh Hwa Securities Investment Trust Co , Ltd	0	0	0	0	0	0	0	0
Fukoku Mutual Life Insurance Co	2,300	2,300	2,300	2,300	2,300	3,900	4,400	4,400
Fuller & Thaler Asset Management Inc	0	0	0	0	0	0	0	0
Fulton Financial Advisors, N A	0	0	0	0	0	0	0	0
FundLogic SAS	0	0	0	0	0	0	0	0
Fusion Family Wealth LLC	0	0	0	0	0	0	0	0
FutureAdvisor	279	0	0	0	0	0	0	0
G W & Wade, LLC	0	0	0	0	0	0	0	0
GA Investment Management	0	0	0	0	0	0	200	0
Gabelli Funds, LLC	289,300	285,400	285,450	290,100	296,650	301,400	279,200	298,660
Gables Capital Management, Inc	782	782	712	562	562	562	462	462
GAM Capital Management (Switzerland) AG	42,949	42,953	56,334	69,850	74,500	59,063	59,078	0
GAM International Management Ltd	360,728	229,120	518,950	509,220	582,263	586,785	245,052	0
GAM Investment Management (Switzerland) AG	0	0	0	0	74,500	59,063	59,063	0
GAM Systematic LLP	0	0	0	0	30,281	20,662	6,333	6,333
Game Creek Capital, L P	0	5,000	0	0	0	0	0	0
Garcia Hamilton & Associates, L P	0	0	0	0	0	0	0	0
Gardner Lewis Asset Management, L P	0	0	0	0	0	0	0	0
Gargoyle Asset Management, LLC	0	0	10,296	10,296	10,296	15,896	0	0
Gary Goldberg Planning Services Inc	0	0	0	0	0	0	0	0
Gateway Investment Advisers, LLC	18,123	18,042	16,604	14,982	14,190	0	0	186,669
GE Asset Management Inc NLE	0	0	0	0	0	0	0	0
Gemmer Asset Management LLC	199	199	353	353	365	0	187	808
GenCap Portfolio Management	289	289	136	281	266	263	0	0
Geneos Wealth Management Inc	7,791	9,765	6,219	4,192	2,196	1,746	1,746	1,626
General American Investors Company, Inc	0	0	0	0	0	0	0	0
Generali Investments CEE, a s	21,870	21,870	21,870	21,870	21,870	21,870	0	0
Geneva Advisors, LLC NLE	0	0	0	0	0	0	0	0
Geode Capital Management, L L C	4,388,291	4,526,695	4,866,739	5,141,462	5,366,204	5,564,287	5,773,764	5,891,584
Gerald L Ray & Associates, Ltd NLE	15,900	15,900	15,900	15,900	15,900	0	0	0
Gesiuris Asset Management S G I I C , S A	1,949	1,951	450	1,951	1,501	1,500	751	0
Gesprofit S A S G I I C	35,622	0	0	0	0	0	0	0
GF Fund Management Co , Ltd	4,451	4,451	6,859	6,859	7,554	7,554	9,328	9,328
GFO Advisory Services, LLC	0	0	0	0	0	0	0	0
GHP Investment Advisors Inc	0	0	0	0	0	0	0	0
Gibraltar Capital Management, Inc	0	0	0	0	0	0	0	0
Gideon Capital Advisors, Inc	0	0	8,986	16,694	0	0	0	0
Gifford Fong Associates	25,000	25,000	25,000	25,000	25,000	75,000	75,000	25,000
Gilder Gagnon Howe & Co LLC	221,277	219,211	210,951	207,381	206,159	349,983	293,619	254,101
Girard Advisory Services, LLC	0	200	0	0	0	0	0	0
Glassman Wealth Services LLC	10	44	0	197	205	230	299	121

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018
Glenmede Investment Management LP	7,961	7,772	6,310	7,122	7,122	7,024	8,624	8,624
Glens Falls National Bank & Trust Company	25,879	24,650	24,390	9,044	175	0	0	0
GLG LLC	0	0	0	0	0	0	0	0
GLG Partners LP	0	0	0	0	0	0	0	51,000
Global Beta Advisors LLC	0	0	0	0	0	0	0	0
Global Index Advisors, Inc NLE	8,180	7,053	3,646	3,284	3,213	3,213	3,213	3,213
Global Retirement Partners, LLC	0	0	445	270	270	270	270	410
Global Trust Asset Management, LLC	0	0	0	0	0	0	0	0
Global X Management Company LLC NLE	52	793	2,334	3,002	1,819	1,873	2,233	2,369
GLOBALT Investments	0	0	0	330	330	0	0	0
Godshalk Welsh Capital Management, Inc	4,135	4,135	3,300	0	0	0	0	0
Golden Capital Management, L L C NLE	69,371	67,656	61,843	40,457	38,286	36,926	32,242	32,242
Golden State Wealth Management, LLC	0	0	0	0	0	0	0	0
Goldman Sachs & Company, Inc	707,827	1,257,348	910,103	1,031,749	970,408	1,132,814	1,496,522	1,653,492
Goldman Sachs Asset Management International	57,693	51,933	26,760	25,454	25,454	24,915	24,915	24,915
Goldman Sachs Asset Management, L P	390,362	1,015,766	424,233	844,744	465,776	358,239	387,333	361,967
Goldman Sachs Bank AG	9,513	10,013	9,934	5,723	9,650	10,027	8,989	7,138
Goldman Sachs International	0	0	0	0	0	0	0	0
Goldman Sachs Personal Financial Management	8,154	18,152	14,332	9,103	4,827	6,469	0	0
Good Harbor Financial, LLC	185	175	126	169	204	267	284	413
Gotham Asset Management, LLC	0	0	0	45,659	51,234	0	58,412	69,183
GQ Asset Management, LLC	0	0	0	0	0	0	0	0
GQG Partners, LLC	0	0	0	0	0	0	0	0
Gradient Investments LLC	81	2	5	5	300	0	28	28
Graham Capital Management, L P	0	0	0	0	0	0	59,755	0
Grantham Mayo Van Otterloo & Co LLC	9,332	9,732	9,332	9,732	0	0	0	0
Grassi Investment Management, L L C	9,025	9,250	10,600	11,550	10,025	7,575	6,375	5,375
Graubündner Kantonalbank	0	0	0	0	0	0	0	0
Greenleaf Trust	0	0	0	0	0	65	0	0
GRESHAM Banque Privée	780	780	780	780	780	0	0	0
Greylin Investment Management, Inc	0	0	0	0	0	32,335	60,455	106,130
Gries Financial LLC	0	0	0	0	78,000	78,000	78,000	78,000
Griffin Asset Management, Inc	5,700	5,700	5,700	5,700	4,400	23,333	18,933	18,853
Grohmann & Weinrauter Vermögens Management GmbH	0	0	0	0	0	0	0	1,823
Ground Swell Capital, LLC	645	0	0	0	0	0	0	0
Group One Trading, L P	0	0	0	53,763	64,177	38,656	10,084	32,684
Groupama Asset Management	3,667	7,904	7,904	7,904	7,904	0	0	0
Grove Bank & Trust	355	355	465	110	290	180	0	0
Grüner Fisher Investments GmbH	0	0	0	0	0	0	0	0
Gryphon Financial Partners LLC	0	0	0	0	0	0	416	393
GS Investments, Inc	0	0	0	0	0	3,100	3,100	3,100
GSA Capital Partners LLP	14,114	0	45,174	9,296	0	0	6,970	0
GSD Gestion S A	0	0	0	1,400	1,400	1,400	1,400	1,400
Guardian Investor Services LLC NLE	2,605	2,605	2,605	2,315	2,263	2,203	2,134	2,076
Guardian Life Insurance Company of America	1,409	1,409	1,453	1,463	860	860	1,233	874
Guggenheim Investments	659,334	602,969	670,122	740,971	770,175	908,586	977,104	1,156,069
Guild Investment Management Inc	0	33,990	13,120	0	0	0	0	0
Guinness Atkinson Asset Management Inc	238,516	228,416	201,416	254,416	254,416	254,416	262,916	237,516
Gulf International Bank (UK) Limited	113,111	113,411	113,511	115,011	115,212	115,212	115,212	113,012
Gupta Wealth Management Llc NLE	701	701	701	701	0	0	0	0
Gustavia Fonder AB NLE	0	0	12,040	7,940	3,040	1,140	1,140	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020

Glenmede Investment Management LP	9,515	9,514	11,334	8,219	6,214	8,516	3,776	3,776
Glens Falls National Bank & Trust Company	0	0	0	0	0	0	0	0
GLG LLC	0	21,805	20,533	0	0	0	6,372	0
GLG Partners LP	42,500	30,009	250,907	261,091	281,555	196,815	6,251	56,647
Global Beta Advisors LLC	0	0	0	0	0	0	0	737
Global Index Advisors, Inc NLE	3,213	0	0	0	0	0	0	0
Global Retirement Partners, LLC	270	270	293	43	43	343	43	43
Global Trust Asset Management, LLC	0	19	19	19	19	19	19	19
Global X Management Company LLC NLE	11,940	0	0	0	0	0	0	0
GLOBALT Investments	0	0	0	0	0	0	0	0
Godshalk Welsh Capital Management, Inc	0	0	0	0	0	0	0	0
Golden Capital Management, L L C NLE	0	0	0	0	0	0	0	0
Golden State Wealth Management, LLC	0	0	0	119	119	51	51	51
Goldman Sachs & Company, Inc	1,132,460	998,923	1,443,452	913,992	1,617,774	1,554,388	1,033,442	1,372,795
Goldman Sachs Asset Management International	24,915	9,737	9,737	7,771	2,304	2,304	2,304	2,849
Goldman Sachs Asset Management, L P	437,165	490,749	531,310	659,521	506,470	1,024,195	824,857	1,270,378
Goldman Sachs Bank AG	6,247	9,734	0	9,349	7,019	18,711	18,612	23,881
Goldman Sachs International	5,265	4,374	0	0	0	0	0	0
Goldman Sachs Personal Financial Management	4,591	5,243	0	217,362	0	0	0	0
Good Harbor Financial, LLC	376	541	490	0	0	0	0	553
Gotham Asset Management, LLC	0	0	0	14,029	10,692	372,278	410,900	1,210,107
GQ Asset Management, LLC	0	0	0	0	0	0	0	9,830
GQG Partners, LLC	0	0	0	0	0	0	0	17,513
Gradient Investments LLC	0	0	0	0	0	65	15	15
Graham Capital Management, L P	0	0	0	0	0	0	0	0
Grantham Mayo Van Otterloo & Co LLC	0	0	0	0	0	0	0	0
Grassi Investment Management, L L C	4,375	4,375	0	0	0	0	0	0
Graubündner Kantonalbank	0	46	26	134	128	98	163	60
Greenleaf Trust	0	0	0	0	0	10,288	0	0
GRESHAM Banque Privée	0	0	0	0	0	0	0	0
Greylin Investment Management, Inc	107,460	106,425	108,690	107,640	113,865	164,835	75,250	72,725
Gries Financial LLC	78,000	78,000	78,000	78,000	0	0	0	0
Griffin Asset Management, Inc	18,853	18,853	18,853	16,288	16,288	8,000	8,000	20,665
Grohmann & Weinrauter Vermögens Management GmbH	0	0	0	1,863	1,863	0	0	0
Ground Swell Capital, LLC	0	0	0	0	0	0	0	0
Group One Trading, L P	22,580	13,618	29,440	41,418	33,423	0	0	102,372
Groupama Asset Management	0	0	0	0	0	0	0	0
Grove Bank & Trust	0	0	0	0	0	0	0	0
Grüner Fisher Investments GmbH	0	0	0	0	2,730	2,730	2,730	2,730
Gryphon Financial Partners LLC	421	0	0	0	0	0	0	0
GS Investments, Inc	3,100	3,100	0	0	0	0	3,100	0
GSA Capital Partners LLP	0	0	12,113	0	8,486	0	0	13,007
GSD Gestion S A	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400
Guardian Investor Services LLC NLE	2,076	2,076	2,076	2,076	2,076	2,076	2,076	0
Guardian Life Insurance Company of America	1,057	1,073	1,083	1,083	1,083	1,095	1,107	1,107
Guggenheim Investments	57,202	54,057	111,856	125,157	114,915	104,566	70,902	50,958
Guild Investment Management Inc	0	0	0	0	0	0	0	0
Guinness Atkinson Asset Management Inc	269,916	269,916	286,816	326,816	291,816	291,816	0	0
Gulf International Bank (UK) Limited	115,012	133,112	89,876	91,642	91,642	91,642	91,642	94,091
Gupta Wealth Management Llc NLE	0	0	0	0	0	0	0	0
Gustavia Fonder AB NLE	0	0	0	0	0	0	0	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018

GWL Investment Management Ltd	333,125	343,843	384,291	373,128	277,837	285,009	283,207	284,006
GWM Advisors LLC	0	0	0	0	511	0	0	0
H M Payson & Co	7,659	7,718	8,872	8,872	7,816	7,137	7,537	7,317
Haafor (Singapore) Pte Ltd	0	0	0	0	0	0	0	0
Hallmark Capital Management, Inc	1,000	1,000	700	266,905	278,822	291,687	0	45,850
Halsey Associates, Inc	4,350	4,350	4,350	4,350	4,350	0	0	0
HAMEL ASSOCIATES, INC	0	0	0	0	0	0	0	0
Hanlon Investment Management, Inc	0	0	43,912	39,910	0	0	0	0
Hanson & Doremus Investment Management, Inc	3,375	3,140	3,140	3,140	3,140	3,140	2,630	2,630
Hanwha Asset Management Co., Ltd	0	0	0	0	0	0	0	0
HAP Trading, LLC	0	19,624	0	0	0	11,721	0	21,117
Harel Insurance Investments and Financial Services Ltd	900	0	0	0	0	0	0	0
Harris Associates L P	15,085,997	14,671,642	14,089,507	16,397,422	18,741,407	17,435,612	19,009,317	18,995,147
Hartford Investment Management Company	89,960	91,386	91,867	85,326	82,530	81,815	78,241	72,464
Harvest Investment Services, LLC	0	0	0	0	0	0	0	0
Harvest Portfolios Group Inc	0	0	0	0	0	0	0	0
Hatteras Investment Partners	20	20	0	0	0	0	0	0
Haven Wealth Group LLC	0	45,590	3,905	3,908	3,912	1,667	1,612	1,612
Hawkins Capital L P	0	7,700	67,700	77,200	77,200	77,200	0	0
HBK Investments, L P	4,529	0	0	0	0	0	0	0
HBKS Wealth Advisors	6,710	6,918	6,591	0	9,450	9,582	8,368	9,145
Hellman, Jordan Management Company, Inc	0	12,250	11,850	11,850	0	0	0	0
Heritage Investors Management Corp	257,527	266,030	260,320	283,379	288,096	299,317	262,679	260,349
Heritage Trust Co	0	0	0	0	0	0	0	0
Herndon Capital Management, LLC NLE	35	35	0	0	0	174,652	174,652	174,652
Hexavest Inc NLE	0	0	0	0	0	0	733,746	355,076
HFM Wealth Management	8,936	9,087	9,087	9,087	9,088	9,089	10,189	11,940
HHM Wealth Advisors, LLC	0	0	0	0	0	0	0	0
High Pointe Capital Management, LLC	15,620	10,810	10,620	0	0	0	0	0
Highbridge Capital Management, LLC	8,687	0	0	0	0	17,989	23,339	17,039
Highland Capital Management, LLC	36,139	45,679	41,983	49,660	56,278	57,903	48,320	50,998
Highlander Capital Management, LLC	0	0	0	0	0	0	0	1,500
HighMark Capital Management Inc	1,874	184	0	0	0	300	300	300
HighPoint Advisor Group, LLC	0	0	0	0	0	0	0	0
Hightower Advisors, LLC	21,283	22,026	29,344	63,167	32,887	21,853	15,943	14,194
HighTower Trust Services, LTA	7,184	7,184	7,184	7,184	0	59,900	59,900	59,900
Hilltop Park Associates LLC	0	25,000	25,000	25,000	25,000	25,000	25,000	25,000
Hirtle, Callaghan & Co., LLC	0	500	0	0	0	0	14,653	22,798
HITE Hedge Asset Management LLC	0	0	0	0	0	0	0	0
HL Financial Services LLC	35,873	7,858	19,270	18,981	18,132	18,287	18,152	6,441
Hoertkorn Richard Charles	55,175	43,125	49,025	50,150	55,925	60,510	79,940	81,640
Holloway Wealth Management, LLC	0	0	4,000	4,000	4,000	4,000	4,000	4,000
Holocene Advisors, LP	0	0	0	0	0	0	21,538	15,598
Homestead Advisers Corp	0	0	0	299,285	299,285	299,285	307,285	0
Honkamp Krueger Financial Services, Inc	0	0	0	0	0	0	0	1,264
HOOPP Investment Management	0	0	0	0	0	0	0	0
Horizon Investments, LLC	0	0	0	0	0	0	0	0
Horizons ETFs Management (Canada) Inc	1,290	1,336	1,234	1,190	1,058	1,110	1,068	727
Horizons ETFs Management (US) LLC	0	0	0	0	0	0	0	0
Hosking Partners LLP	0	0	0	45,843	90,472	90,924	97,873	102,641
Hotchkis and Wiley Capital Management, LLC	0	0	828,000	979,914	7,427,314	10,243,914	12,865,414	16,039,985

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020
GWL Investment Management Ltd	286,437	251,918	251,653	0	391,685	469,662	205,259	205,012
GWM Advisors LLC	0	0	0	0	0	0	0	0
H M Payson & Co	7,317	6,686	0	0	4,253	2,903	2,103	2,103
Haafor (Singapore) Pte Ltd	0	0	0	0	0	0	0	88,374
Hallmark Capital Management, Inc	42,215	41,735	21,216	53,021	68,226	0	0	0
Halsey Associates, Inc	0	0	0	0	0	0	0	0
HAMEL ASSOCIATES, INC	19,100	19,100	0	71,705	77,330	35,580	0	0
Hanlon Investment Management, Inc	0	0	0	0	0	0	0	0
Hanson & Doremus Investment Management, Inc	2,630	2,630	2,070	1,895	1,590	490	75	0
Hanwha Asset Management Co., Ltd	0	0	206	206	188	180	188	194
HAP Trading, LLC	10,206	0	32,417	26,064	29,725	32,274	42,974	0
Harel Insurance Investments and Financial Services Ltd	0	0	0	0	617	617	617	617
Harris Associates L P	18,968,777	18,569,065	19,644,841	19,909,054	19,251,673	18,904,576	20,563,519	19,841,374
Hartford Investment Management Company	48,192	47,170	46,741	41,266	40,990	40,260	39,160	41,103
Harvest Investment Services, LLC	0	0	0	6,016	0	0	0	0
Harvest Portfolios Group Inc	0	0	0	0	0	34,037	36,428	34,333
Hatteras Investment Partners	0	0	0	0	0	0	0	0
Haven Wealth Group LLC	0	0	0	0	0	0	0	0
Hawkins Capital L P	0	0	0	0	0	0	0	0
HBK Investments, L P	0	0	0	0	51,110	136,028	31,984	399,763
HBKS Wealth Advisors	9,046	9,226	8,405	10,355	11,541	14,264	0	0
Hellman, Jordan Management Company, Inc	0	0	0	0	0	0	0	0
Heritage Investors Management Corp	232,874	193,331	76,471	72,101	72,241	66,571	61,549	48,659
Heritage Trust Co	0	180	1,448	0	0	0	0	0
Herndon Capital Management, LLC NLE	174,652	0	0	0	0	0	0	0
Hexavest Inc NLE	10,371	1,486	0	0	0	0	0	0
HFM Wealth Management	12,103	12,741	16,226	19,664	19,898	21,096	26,305	37,819
HHM Wealth Advisors, LLC	0	0	0	0	0	0	0	200
High Pointe Capital Management, LLC	0	0	0	0	0	0	0	0
Highbridge Capital Management, LLC	0	12,442	55,142	21,142	0	0	0	0
Highland Capital Management, LLC	52,294	53,920	42,721	49,673	46,397	45,921	29,808	0
Highlander Capital Management, LLC	1,800	2,400	2,400	2,100	2,100	2,100	2,100	2,100
HighMark Capital Management Inc	300	300	300	300	300	0	0	0
HighPoint Advisor Group, LLC	0	0	0	0	0	5,613	0	0
Hightower Advisors, LLC	8,170	7,200	62,605	62,606	62,283	117,933	0	747,695
HighTower Trust Services, LTA	59,925	59,925	59,925	59,925	59,925	59,925	59,925	57,700
Hilltop Park Associates LLC	25,000	0	0	0	0	0	0	0
Hirtle, Callaghan & Co., LLC	21,605	12,775	12,775	12,775	12,775	12,775	12,775	12,775
HITE Hedge Asset Management LLC	0	0	0	0	0	0	0	164,845
HL Financial Services LLC	0	0	0	0	0	0	0	0
Hoertkorn Richard Charles	81,140	80,840	79,890	80,340	79,115	122,365	95,215	100,215
Holloway Wealth Management, LLC	4,000	4,000	4,000	4,000	0	0	0	0
Holocene Advisors, LP	12,133	23,063	76,868	302,116	1,000,664	725,501	15,077	92,369
Homestead Advisers Corp	0	0	0	0	0	0	0	0
Honkamp Krueger Financial Services, Inc	0	640	0	0	0	0	0	0
HOOPP Investment Management	0	0	0	0	0	0	390,000	0
Horizon Investments, LLC	0	0	243	7,255	8,602	0	0	648
Horizons ETFs Management (Canada) Inc	807	807	807	807	807	807	807	180
Horizons ETFs Management (US) LLC	2,315	1,257	1,257	1,257	1,257	1,257	1,257	1,257
Hosking Partners LLP	103,400	100,540	96,952	96,412	95,851	91,484	193,310	526,388
Hotchkis and Wiley Capital Management, LLC	15,975,655	15,542,305	16,560,136	15,875,936	15,475,736	14,981,016	15,857,066	14,438,344

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018
Howard Capital Management	0	0	0	0	0	0	0	242,196
Howard Capital Management, Inc	0	0	0	0	0	0	0	247,309
Howe and Rusling, Inc	45	45	45	45	45	45	45	45
HRS Management LLC	0	0	0	0	0	0	0	0
HRT Financial LP	0	0	0	0	0	0	0	0
HSBC Bank USA, N A	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
HSBC Global Asset Management (France) S A	7,334	7,334	7,308	7,570	1,621	456	0	0
HSBC Global Asset Management (Hong Kong) Limited	0	0	0	0	0	0	0	0
HSBC Global Asset Management (International) Limited	1,353	1,353	0	0	0	0	0	0
HSBC Global Asset Management (UK) Limited	325,140	302,915	317,573	356,479	420,006	467,033	501,066	480,170
HSBC Global Asset Management Deutschland GmbH	0	0	0	2,540	2,540	4,800	4,800	2,800
HuaAn Fund Management Co , Ltd	15,100	15,100	11,000	11,000	11,000	11,000	11,000	11,000
Hudock Capital Group, LLC	0	0	0	0	26	26	26	26
Hudson Bay Capital Management LP	0	0	0	0	0	0	0	13,000
Huntington Private Financial Group	34,233	6,406	6,456	5,391	5,449	1,456	1,118	1,207
Huntington Steele LLC NLE	0	0	0	0	0	0	0	0
Hussman Strategic Advisors, Inc	0	0	0	50,000	50,000	0	0	0
Hutchens Investment Management, Inc NLE	0	0	24,815	24,251	0	0	0	0
Hutchin Hill Capital, LP NLE	6,300	0	0	35,600	44,200	0	0	0
Hwabao WP Fund Management Co , Ltd	147,340	147,340	99,694	99,694	99,694	99,694	99,694	99,694
Ibercaja Gestión S G I C , S A	1,401	1,400	1,404	1,406	1,398	1,401	1,400	1,397
Iberiabank Corp	0	0	0	4,814	0	0	0	0
IBM Retirement Fund	49,743	36,008	35,611	4,236	9,302	9,302	5,973	8,387
ICBC Credit Suisse Asset Management Co Ltd	35	35	0	0	0	0	0	0
Icon Wealth Partners, LLC	0	0	0	0	0	0	1,192	0
ICW Group	18,600	18,600	18,600	0	0	30,000	30,000	30,000
ID-Sparinvest A/S	2,670	2,670	2,670	2,442	3,942	3,942	3,942	3,942
IFAM Capital	0	0	0	0	0	0	0	484
IFG Advisory, LLC	0	0	0	0	0	0	0	7,704
IFM Investors	0	0	4,786	7,709	10,748	10,748	10,835	11,777
IG Wealth Management	224,959	936,596	1,327,583	1,110,019	975,002	905,800	0	0
IHT Wealth Management, LLC	0	0	105	105	55	555	570	571
IKOS CIF Ltd	0	600	600	600	600	600	600	600
Ilmarinen Mutual Pension Insurance Company	0	0	0	0	0	0	0	0
IM Gestão de Ativos - Sociedade Gestora de Organismos de Investiment	0	2,000	2,000	2,000	2,000	2,000	2,000	0
IMA Wealth, Inc	0	0	0	0	0	0	0	0
IMS Capital Management, Inc	12,725	13,257	13,258	13,060	12,821	15,613	22,537	22,537
Independence Bank of Kentucky	0	0	0	0	0	0	400	400
Independent Advisor Alliance, LLC	0	0	0	0	0	0	0	0
Independent Financial Partners	3,451	3,626	4,600	4,737	4,583	4,384	4,668	4,668
Independent Order of Foresters	3,605	3,605	3,605	3,605	3,085	3,085	2,165	4,625
Independent Securities (Pty) Ltd	0	0	0	0	0	13,500	0	0
Index Management Solutions, LLC NLE	419	419	0	0	0	0	0	0
IndexIQ Advisors LLC	496	1,071	2,119	0	6,582	1,351	1,612	9,849
Industrial Alliance Investment Management Inc	119,900	134,000	43,700	112,400	142,100	101,800	33,700	0
Informed Portfolio Management AB	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
Infrastructure Capital Advisors, LLC	0	0	12,300	15,000	15,000	6,000	0	6,931
ING Bank N V	10,691	9,436	10,398	11,115	11,230	8,771	12,070	0
Ingalls & Snyder LLC (Asset Management)	0	0	0	0	0	0	0	0
Insight Investment Management (Global) Limited	0	229	229	229	229	229	229	229
Inspire Investing	0	0	0	148	2,327	3,066	6,248	8,138

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020
Howard Capital Management	242,196	242,196	242,196	242,196	242,196	242,196	242,196	0
Howard Capital Management, Inc	0	0	140,297	140,297	91,225	20,202	20,202	20,202
Howe and Rusling, Inc	45	243	45	45	45	45	45	45
HRS Management LLC	0	0	25,000	0	0	0	0	0
HRT Financial LP	0	0	0	5,951	0	0	0	12,460
HSBC Bank USA, N A	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
HSBC Global Asset Management (France) S A	0	0	0	0	0	0	0	0
HSBC Global Asset Management (Hong Kong) Limited	0	0	13,419	13,419	13,419	13,419	13,419	13,419
HSBC Global Asset Management (International) Limited	0	0	0	0	0	0	0	0
HSBC Global Asset Management (UK) Limited	362,795	355,307	400,492	413,238	407,005	426,375	459,015	454,131
HSBC Global Asset Management Deutschland GmbH	328	0	0	0	0	0	0	0
HuaAn Fund Management Co., Ltd	5,700	5,700	4,480	4,480	3,980	3,980	3,780	3,780
Hudock Capital Group, LLC	26	26	26	27	27	27	28	28
Hudson Bay Capital Management LP	0	0	0	0	0	0	0	0
Huntington Private Financial Group	700	622	369	36	36	36	1,215	0
Huntington Steele LLC NLE	0	0	57	57	0	57	57	57
Hussman Strategic Advisors, Inc	0	0	0	0	0	0	0	0
Hutchens Investment Management, Inc NLE	0	0	0	0	0	0	0	0
Hutchin Hill Capital, LP NLE	0	0	0	0	0	0	0	0
Hwabao WP Fund Management Co., Ltd	123,092	123,092	173,458	173,458	328,993	328,993	616,187	616,187
Ibercaja Gestión S G I C, S A	1,399	1,399	1,399	1,401	1,402	1,402	0	0
Iberiabank Corp	0	0	0	0	0	0	0	0
IBM Retirement Fund	7,318	6,240	0	0	0	0	0	0
ICBC Credit Suisse Asset Management Co Ltd	0	0	0	0	0	0	0	0
Icon Wealth Partners, LLC	1,049	0	0	68	0	0	0	0
ICW Group	30,000	30,000	0	0	0	0	0	10,000
ID-Sparinvest A/S	3,942	3,942	0	0	0	0	0	0
IFAM Capital	528	551	250	313	313	313	269	351
IFG Advisory, LLC	6,885	6,586	0	7,664	7,814	0	0	0
IFM Investors	17,268	20,259	22,240	26,737	26,737	36,972	36,605	33,944
IG Wealth Management	0	0	0	0	0	0	0	0
IHT Wealth Management, LLC	0	0	0	0	0	0	0	0
IKOS CIF Ltd	600	0	0	0	0	0	0	0
Ilmarinen Mutual Pension Insurance Company	0	0	0	0	0	40,172	40,172	40,172
IM Gestão de Ativos - Sociedade Gestora de Organismos de Investiment	0	0	0	0	0	0	0	0
IMA Wealth, Inc	65	37	37	37	37	37	37	37
IMS Capital Management, Inc	21,492	21,492	29,729	29,729	29,729	12,778	11,729	0
Independence Bank of Kentucky	400	400	200	100	100	0	0	0
Independent Advisor Alliance, LLC	0	0	0	0	7,175	0	0	0
Independent Financial Partners	6,013	7,865	4,353	6,200	6,200	1,144	605	2,342
Independent Order of Foresters	5,925	5,925	5,875	5,411	4,421	0	0	0
Independent Securities (Pty) Ltd	0	0	0	0	0	0	0	0
Index Management Solutions, LLC NLE	0	0	0	0	0	0	0	0
IndexIQ Advisors LLC	0	0	0	0	0	0	0	0
Industrial Alliance Investment Management Inc	37,600	0	0	0	0	0	0	0
Informed Portfolio Management AB	0	0	0	0	0	0	0	0
Infrastructure Capital Advisors, LLC	0	0	0	0	0	0	0	0
ING Bank N V	9,570	14,624	8,689	22,263	22,574	11,513	24,543	0
Ingalls & Snyder LLC (Asset Management)	0	20,655	0	0	0	0	0	0
Insight Investment Management (Global) Limited	0	0	0	0	0	0	0	0
Inspire Investing	8,076	8,305	10,838	15,797	20,392	21,496	24,414	73,237

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018

Institutional Capital, LLC NLE	76,273	73,813	73,813	73,813	0	0	0	0
INTECH Investment Management LLC	0	0	0	0	0	0	0	0
Integral Derivatives LLC	0	0	10,670	13,162	0	11,352	0	0
Integrated Wealth Management	200	500	0	0	0	0	0	0
Intellectus Partners, LLC	0	0	0	0	7,589	9,445	17,615	19,027
Intercontinental Wealth Advisors, LLC	0	0	0	0	0	0	0	0
Intermoney Gestión S G I I C S A	0	0	0	0	0	3,002	1,500	0
INTRUST Bank, N A	10,111	10,089	10,032	9,956	9,534	6,344	0	0
Invesco Advisers, Inc	9,946,280	9,900,031	10,104,671	10,622,171	10,366,748	11,748,059	11,445,205	8,871,145
INVESCO Asset Management (Japan) Ltd	23,644	23,126	21,828	21,683	20,666	22,874	22,251	21,578
INVESCO Asset Management Deutschland GmbH	42,542	56,003	58,592	52,728	52,728	52,728	53,266	39,469
INVESCO Asset Management Limited	1,503,061	1,492,518	1,469,769	1,590,312	1,544,988	1,764,912	1,890,893	1,842,682
INVESCO Australia Ltd	12,502	12,940	12,940	12,940	12,940	12,940	12,940	12,940
Invesco Canada Ltd	821,009	754,011	580,519	511,383	491,966	468,642	435,242	396,119
Invesco Capital Management LLC	260,039	292,348	345,411	207,145	126,905	185,605	151,906	287,202
INVESCO Global Structured Products Group	237,484	241,544	247,488	339,733	365,405	433,112	446,157	23,602
Invesco Management Group, Inc	54,579	49,718	18,713	7,973	5,633	5,946	5,847	10,194
Investitori SGR S p A	1,400	1,400	1,400	2,400	2,400	4,000	4,000	9,000
Investment Advisory Services, Inc	0	0	0	0	0	0	0	0
Investment Centers of America, Inc NLE	0	0	5,101	7,649	0	0	0	0
Investment Counselors of Maryland, LLC NLE	26,085	25,673	25,532	23,814	25,514	25,923	25,539	25,351
Investment Management of Virginia, L L C	0	29,020	30,970	96,686	98,266	52,374	30,023	0
Invictus RG Pte Ltd	62	548	0	1,943	0	0	0	0
IPConcept (Luxemburg) S A	20,040	20,040	20,040	20,040	20,040	19,850	19,850	19,850
IPG Investment Advisors, LLC	10,000	10,000	10,000	10,000	14,000	22,000	22,000	25,000
Ipswich Investment Management Co , Inc	0	0	0	0	0	6,230	6,230	6,230
IRC Wealth	0	0	0	0	0	0	0	0
Ireland Strategic Investment Fund	3,680	3,680	0	0	0	0	0	0
Irish Life Investment Managers Ltd	76,060	76,118	51,124	51,569	126,037	130,919	164,897	173,357
IST Investmentstiftung	120	128	125	127	126	134	123	113
J Goldman & Co , L P	0	0	0	74,200	0	0	0	0
J M Hartwell L P NLE	0	0	37,050	36,150	0	0	0	0
J P Morgan Investment Management, Inc (SI)	0	0	0	0	0	0	0	0
J P Morgan Private Investments Inc (JPMPI)	0	0	0	0	1,724	3,544	4,887	4,885
J P Morgan Securities LLC	1,513	1,210	1,340	133,378	590,746	529,878	258,616	316,132
J P Morgan Securities plc	0	0	0	88	345	287	69	0
Jackson Square Partners, LLC	141,776	141,776	108,119	108,119	108,119	0	0	0
Jacobi Capital Management, LLC	1,229	1,174	1,174	1,174	964	964	964	1,114
Jacobs Levy Equity Management, Inc	159,007	121,290	90,124	90,124	90,124	90,124	90,124	90,124
James Investment Research Inc	0	0	0	0	0	0	0	0
Jana Investment Advisers Pty Ltd NLE	2,500	2,500	2,500	2,500	2,500	0	0	0
Jane Street Capital, L L C	26,653	47,653	53,396	71,163	42,532	85,257	181,260	172,795
Janney Montgomery Scott LLC	8,207	21,305	51,281	57,393	67,965	70,894	66,887	85,575
Janus Henderson Investors	456,444	1,471,189	1,700,944	1,796,550	764,980	194,892	190,677	116,797
Jarislowsky Fraser, Ltd	245	245	245	245	189	189	15	153
Jefferies LLC	1,500	5,928	3,328	4,413	0	0	91,808	744
Jennison Associates LLC	0	4,313	56,436	15,523	66,809	0	0	0
JFS Wealth Advisors, LLC	340	340	313	313	313	455	455	427
JNBA Financial Advisors Inc	2,578	519	2,558	2,558	2,558	2,558	2,558	2,558
Joel Isaacson & Co , LLC	750	750	750	0	0	0	0	0
Johnson Financial Group Inc	1,705	1,705	1,705	1,405	720	0	0	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020

Institutional Capital, LLC NLE	0	0	0	0	0	0	0	0
INTECH Investment Management LLC	0	0	3,073	3,073	3,073	1,640	903	221
Integral Derivatives LLC	0	0	0	0	0	0	0	0
Integrated Wealth Management	0	0	0	0	0	0	0	0
Intellectus Partners, LLC	17,698	15,940	11,818	10,833	10,042	8,744	0	0
Intercontinental Wealth Advisors, LLC	0	0	0	0	0	0	0	31,065
Intermoney Gestión S G I I C S A	0	0	2,297	2,297	2,297	2,297	2,297	2,297
INTRUST Bank, N A	0	0	0	0	0	0	0	0
Invesco Advisers, Inc	8,367,194	8,143,772	6,082,099	779,388	859,865	822,745	788,730	869,456
INVESCO Asset Management (Japan) Ltd	23,019	22,019	22,011	2,256	1,856	1,556	1,556	1,856
INVESCO Asset Management Deutschland GmbH	16,369	16,369	16,369	16,369	16,369	16,369	16,369	16,369
INVESCO Asset Management Limited	1,965,456	1,849,593	1,778,971	1,525,627	316,219	0	0	5
INVESCO Australia Ltd	0	0	0	0	0	0	0	0
Invesco Canada Ltd	211,177	128,645	0	0	0	0	0	0
Invesco Capital Management LLC	1,119,430	1,103,414	2,051,970	2,048,328	2,381,493	2,812,810	2,261,927	1,865,095
INVESCO Global Structured Products Group	23,411	23,302	22,434	22,228	21,341	21,317	20,829	20,829
Invesco Management Group, Inc	9,391	10,986	11,018	0	0	0	0	373
Investitori SGR S p A	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Investment Advisory Services, Inc	0	0	0	0	0	0	55,637	45,316
Investment Centers of America, Inc NLE	0	0	0	0	0	0	0	0
Investment Counselors of Maryland, LLC NLE	27,861	28,361	28,686	28,107	28,947	24,615	31,315	28,270
Investment Management of Virginia, L L C	0	0	0	0	0	0	0	0
Invictus RG Pte Ltd	0	0	0	0	0	0	0	0
IPConcept (Luxemburg) S A	19,850	23,770	23,770	25,920	25,920	24,080	24,080	0
IPG Investment Advisors, LLC	25,000	25,000	28,000	28,000	28,000	28,000	28,000	28,000
Ipswich Investment Management Co , Inc	11,830	59,025	6,785	0	0	0	0	0
IRC Wealth	0	0	0	3,032	3,032	3,032	3,032	3,032
Ireland Strategic Investment Fund	0	0	0	0	0	0	0	0
Irish Life Investment Managers Ltd	137,294	139,764	148,718	149,235	145,701	132,479	42,387	41,846
IST Investmentstiftung	127	128	135	133	130	130	142	140
J Goldman & Co , L P	0	0	0	0	0	0	0	0
J M Hartwell L P NLE	0	0	0	0	0	0	0	0
J P Morgan Investment Management, Inc (SI)	0	0	355	355	355	355	355	355
J P Morgan Private Investments Inc (JPMPI)	2,996	2,744	16,513	13	0	0	0	0
J P Morgan Securities LLC	31,335	517	309,710	99,366	1,702	1,707	1,707	623,895
J P Morgan Securities plc	0	0	0	0	56	527	86	1,140
Jackson Square Partners, LLC	0	0	0	0	0	0	0	0
Jacobi Capital Management, LLC	1,114	1,114	1,114	1,114	1,114	1,114	1,114	1,114
Jacobs Levy Equity Management, Inc	90,124	17,080	389,060	247,550	0	0	0	0
James Investment Research Inc	0	44,670	35,670	20,930	6,855	0	0	0
Jana Investment Advisers Pty Ltd NLE	0	0	0	0	0	0	0	0
Jane Street Capital, L L C	24,100	159,386	94,222	63,127	65,746	37,248	103,860	189,002
Janney Montgomery Scott LLC	81,644	67,375	18,642	38,009	12,130	13,060	11,744	14,952
Janus Henderson Investors	105,434	100,256	127,460	178,827	280,743	356,756	280,943	428,153
Jarislowsky Fraser, Ltd	239	239	239	186	125	0	0	0
Jefferies LLC	0	0	85,120	31,776	40,230	14,844	291,799	0
Jennison Associates LLC	0	0	0	0	0	0	0	0
JFS Wealth Advisors, LLC	427	427	427	427	427	0	0	0
JNBA Financial Advisors Inc	2,115	0	2,115	2,115	2,115	2,115	2,115	2,115
Joel Isaacson & Co , LLC	0	0	0	0	0	0	0	0
Johnson Financial Group Inc	0	0	0	0	0	0	0	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018

Jolley Asset Management, LLC NLE	50	50	50	12,500	3,450	8,850	15,950	14,200
JOYN Advisors, Inc NLE	0	0	0	0	0	0	0	87
JP Morgan Asset Management	306,061	518,579	1,392,876	3,948,791	4,911,245	3,064,352	2,386,344	1,560,338
JPMorgan Asset Management (Asia Pacific) Limited	0	0	5,563	10,053	9,093	0	0	283
JPMorgan Asset Management (Taiwan) Limited	2,704	2,704	0	0	0	0	0	0
JPMorgan Asset Management U K Limited	244,680	244,560	245,240	313,426	280,470	12,410	9,220	9,914
JPMorgan Private Bank (United States)	236,950	248,307	298,479	561,295	561,226	416,144	433,472	331,499
JRS Finanzmandate AG	0	2,400	0	0	0	0	0	0
Julex Capital Management, LLC	0	0	0	0	0	0	0	0
Julius Baer International Ltd	0	0	0	4,349	8,110	8,110	8,110	8,110
Jump Trading, LLC	0	0	0	0	0	0	9,672	0
K2 Advisors L L C	0	0	0	0	0	0	0	0
Kaizen Advisory, LLC	0	0	0	0	0	0	368	368
Kanally Trust Company	1,168	1,100	2,610	2,610	2,610	2,610	2,610	2,610
Kanawha Capital Management, LLC	47,739	48,559	43,727	49,538	50,058	49,648	33,022	44,520
Karp Capital Management Corporation	0	0	0	0	0	0	0	0
Kavar Capital Partners, LLC	0	0	0	0	0	0	0	0
Kazazian Asset Management, LLC	0	0	0	0	0	8,500	8,819	8,011
KB Asset Management Co , Ltd	369	468	110	110	110	110	110	110
KBC Asset Management N V	21,990	21,990	21,990	21,990	36,385	36,385	36,385	36,385
KBC Group NV	25,417	83,677	32,241	37,535	36,385	42,895	34,163	34,163
Keeley-Teton Advisors, LLC	0	0	45,118	0	0	0	0	0
Keen Wealth Advisors	0	0	0	0	0	0	0	0
Kelman-Lazarov, Inc	200	200	200	0	0	0	0	0
Kentucky Retirement Systems	32,190	28,998	27,533	24,343	24,383	23,355	23,491	19,907
Kentucky Retirement Systems Insurance Trust Fund	15,284	12,278	12,284	10,267	10,417	10,058	10,116	8,733
Kentucky Teachers' Retirement System	51,665	51,665	47,265	43,365	43,365	43,365	43,365	43,015
KEPLER-FONDS Kapitalanlagegesellschaft m b H	1,231	0	0	0	0	0	0	0
Kettle Hill Capital Management, LLC	0	0	0	0	0	0	0	0
Key Square Capital Management LLC	0	0	469,735	0	0	0	0	0
KeyBanc Capital Markets	76,020	95,353	103,320	108,629	111,123	103,399	65,667	41,924
Kiley Juergens Wealth Management, L L C	0	0	0	0	0	0	970	0
Kinea Investimentos Ltda	0	0	0	0	0	961	961	1,131
Kingdon Capital Management, L L C	0	761,308	790,644	243,735	0	0	0	0
Kistler-Tiffany Advisors	1,970	1,970	1,770	1,770	1,770	1,770	1,770	1,770
Kiwi Wealth Investments Limited Partnership	0	0	0	0	0	0	0	80,298
Kiwom Asset Management Co , Ltd	6,000	6,000	0	0	0	0	0	0
Klingenstein Fields Advisors	0	3,235	3,255	0	0	0	0	0
KLP Fondsforvaltning AS	0	0	0	0	0	0	0	0
KMS Financial Services, Inc NLE	4,207	0	0	0	0	0	0	0
Knights of Columbus	0	0	0	24,100	24,150	21,937	18,987	24,637
Knights of Columbus Asset Advisors LLC (Sibling)	0	0	0	24,100	24,150	21,937	18,987	24,637
Knowledge Leaders Capital, LLC	0	0	0	0	0	0	92,400	0
Koch Industries, Inc	0	0	0	0	0	0	17,253	0
Kore Private Wealth, LLC	0	0	0	0	0	0	0	0
Korea Investment Corporation	202,700	184,700	294,048	306,056	594,422	619,222	677,822	247,647
Kornitzer Capital Management Inc	118,725	143,065	165,300	235,880	431,330	522,725	672,680	807,125
Kovack Advisors Inc	0	0	0	0	0	0	7,423	7,200
Kovitz Investment Group Partners, LLC	0	0	0	0	7,450	7,700	0	0
Krediettrust Luxembourg S A	0	0	0	0	0	0	0	0
Kyobo AXA Investment Managers Co , Ltd	0	0	0	0	0	0	0	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020
Jolley Asset Management, LLC NLE	4,750	5,300	0	0	0	0	0	0
JOYN Advisors, Inc NLE	786	728	676	0	0	0	0	0
JP Morgan Asset Management	121,397	108,137	113,650	100,159	106,203	104,779	108,465	114,669
JPMorgan Asset Management (Asia Pacific) Limited	283	283	283	283	283	283	283	0
JPMorgan Asset Management (Taiwan) Limited	0	0	0	0	0	0	0	0
JPMorgan Asset Management U K Limited	0	0	0	0	0	6,683	9,139	1,037
JPMorgan Private Bank (United States)	302,495	297,718	275,405	116,557	116,536	122,844	121,386	116,609
JRS Finanzmandate AG	0	0	0	0	0	0	0	0
Julex Capital Management, LLC	0	0	0	149	0	0	0	0
Julius Baer International Ltd	8,110	0	0	0	0	0	0	0
Jump Trading, LLC	0	0	0	0	8,799	14,607	0	0
K2 Advisors L L C	0	0	0	0	0	0	6,220	3,231
Kaizen Advisory, LLC	851	851	1,049	1,049	1,049	1,049	1,049	1,049
Kanally Trust Company	2,610	2,610	0	0	0	0	0	0
Kanawha Capital Management, LLC	43,945	43,940	37,211	38,500	37,946	36,758	33,640	31,670
Karp Capital Management Corporation	0	0	45	0	0	0	0	0
Kavar Capital Partners, LLC	200	0	0	0	300	0	0	0
Kazazian Asset Management, LLC	7,593	7,593	0	0	0	0	0	0
KB Asset Management Co , Ltd	110	110	0	0	0	0	0	0
KBC Asset Management N V	36,385	36,385	36,385	36,385	0	0	0	0
KBC Group NV	31,755	31,755	63,446	52,782	62,917	42,113	39,770	34,419
Keeley-Teton Advisors, LLC	0	0	0	0	0	0	0	0
Keen Wealth Advisors	70	70	70	70	0	0	0	0
Kelman-Lazarov, Inc	0	0	0	0	0	0	0	0
Kentucky Retirement Systems	16,225	16,288	16,509	16,413	17,507	19,265	19,345	25,682
Kentucky Retirement Systems Insurance Trust Fund	7,197	7,225	0	7,464	7,840	8,870	8,907	11,399
Kentucky Teachers' Retirement System	43,015	39,265	39,265	39,265	514,965	610,765	537,073	454,173
KEPLER-FONDS Kapitalanlagegesellschaft m b H	0	0	0	0	0	0	0	0
Kettle Hill Capital Management, LLC	0	0	0	0	280,663	359,588	298,101	374,069
Key Square Capital Management LLC	0	0	0	0	0	0	0	0
KeyBanc Capital Markets	30,686	26,320	16,657	0	0	0	0	0
Kiley Juergens Wealth Management, L L C	970	970	0	0	0	0	0	0
Kinea Investimentos Ltda	1,908	0	0	12,972	0	864	12,402	0
Kingdon Capital Management, L L C	0	0	0	0	0	0	0	0
Kistler-Tiffany Advisors	1,770	1,100	100	0	0	0	0	0
Kiwi Wealth Investments Limited Partnership	0	0	0	0	0	0	0	0
Kiwoom Asset Management Co , Ltd	0	0	0	0	0	0	0	0
Klingenstein Fields Advisors	0	0	0	0	0	0	0	0
KLP Fondsforvaltning AS	0	0	74,153	74,153	74,153	74,153	74,153	74,153
KMS Financial Services, Inc NLE	0	0	0	0	0	0	0	0
Knights of Columbus	23,037	21,987	0	0	0	0	0	0
Knights of Columbus Asset Advisors LLC (Sibling)	23,037	21,987	0	0	0	0	0	0
Knowledge Leaders Capital, LLC	0	42,500	0	0	0	0	0	0
Koch Industries, Inc	5,515	0	0	0	0	0	0	0
Kore Private Wealth, LLC	0	0	550	550	0	0	550	0
Korea Investment Corporation	287,247	65,462	44,037	178,100	249,700	366,400	254,100	100,300
Kornitzer Capital Management Inc	858,286	874,145	927,345	964,090	1,176,740	1,188,545	1,354,358	1,357,547
Kovack Advisors Inc	0	0	0	0	0	0	0	19,323
Kovitz Investment Group Partners, LLC	0	0	0	0	0	0	0	0
Krediettrust Luxembourg S A	5,000	5,000	5,000	5,000	0	0	0	0
Kyobo AXA Investment Managers Co , Ltd	0	0	0	0	0	256	256	256

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018

L2 Asset Management, LLC	0	0	0	0	0	0	0	0
La Banque Postale Asset Management	167,594	3,706	11,036	0	124,000	103,418	99,873	46,469
Ladenburg Thalmann Asset Management Inc (LTAM)	10,569	15,683	18,393	70,760	64,827	57,376	34,496	17,896
LaFleur & Godfrey LLC	46,717	45,971	92,617	150,242	165,232	139,242	136,521	263,503
LähiTapiola Varainhoito Oy	0	0	0	0	0	0	0	0
Landaas & Company	0	0	0	0	0	561	496	0
Landscape Capital Management, L L C	0	0	0	0	0	29,558	53,325	0
Lantz Financial, LLC	0	0	0	0	0	0	0	0
LaSalle Investment Management Securities B V	11,747	11,747	11,747	11,747	11,747	0	0	0
LaSalle Street Capital Management, LLC NLE	37,705	37,705	37,705	37,585	37,585	37,585	37,585	37,585
Laurie J Hall Trustee	675	675	600	600	400	400	250	0
Laurion Capital Management LP	0	0	3,900	17,404	0	0	0	0
Lawrence W Kelly & Associates, Inc	211,895	195,420	26,611	18,752	17,552	17,552	16,885	10,260
Lazard Asset Management, L L C	0	0	542,223	647,688	2,960,254	3,863,954	4,811,354	6,122,754
LBBW Asset Management Investmentgesellschaft mbH	1,029	1,029	0	0	0	0	0	0
Leavell Investment Management, Inc	4,730	4,100	4,100	0	0	0	0	0
Lebenthal Asset Management, LLC	9,510	9,395	8,410	8,410	8,410	8,410	8,410	8,410
Ledyard National Bank	1,120	1,000	1,000	1,500	1,500	3,900	2,900	2,900
Lee Financial Company, L L C	0	0	2,625	2,625	2,625	2,625	2,625	2,625
Lee, Danner & Bass, Inc	74,452	73,352	71,707	82,037	83,237	79,457	84,307	85,032
Legacy Financial Advisors, Inc	0	0	0	0	0	0	184	144
Legacy Private Trust Co	0	137,452	124,749	85,155	4,424	0	0	0
Legal & General Investment Management America Inc	13,964	13,964	13,964	13,964	13,964	13,964	13,964	13,964
Legal & General Investment Management Ltd	1,936,289	1,996,091	2,019,549	1,975,303	1,899,877	1,934,049	1,842,652	1,773,922
Leith Wheeler Investment Counsel Ltd	10,700	10,700	0	0	0	0	0	0
Lenox Wealth Advisors, LLC	0	0	0	0	0	0	0	150
Lenox Wealth Management, Inc NLE	83	83	168	83	0	0	0	0
Letko, Brosseau & Associates Inc	6,500	6,500	6,500	6,500	6,500	6,500	6,500	6,500
Liberty Mutual Insurance Group	26,645	24,033	27,790	20,910	25,018	15,403	15,183	15,183
LifePlan Financial Group, Inc NLE	0	0	0	0	0	0	0	72
Lincoln Capital Corporation	0	0	45,562	40,733	46,538	48,103	40,821	0
Lincoln Investment Advisors Corporation	0	0	0	0	0	0	5,338	0
Lindbrook Capital, LLC	0	0	0	0	0	0	0	0
Linscomb & Williams, Inc	0	0	3,672	4,574	64,926	68,332	68,265	68,222
Litman Gregory Asset Management, LLC	0	0	0	0	0	1,000	1,000	0
Livförsäkringsbolaget Skandia, ömsesidigt	39,009	39,009	24,909	7,209	7,209	7,209	5,809	5,809
LLB Asset Management AG	4,801	4,801	8,801	8,801	24,269	26,760	21,769	4,269
LMCG Investments, LLC	195,718	189,751	187,445	189,029	196,893	198,715	179,173	178,738
LMR Partners LLP	21,158	9,598	21,398	12,835	36,851	0	0	0
LoCorr Fund Management, LLC	0	0	0	0	0	0	0	0
LOGIQ Asset Management Ltd	6,000	10,000	8,200	8,200	7,200	7,200	7,200	7,200
Lombard Odier Asset Management (Europe) Ltd	4,512	4,512	4,512	4,849	4,849	4,849	4,816	0
Lombard Odier Gestión (España) SGIC, S A	90,800	0	0	0	0	0	0	0
Longview Partners LLP	5,700	5,700	0	0	0	0	0	0
Loomis, Sayles & Company, L P	2,182	1,932	7,122	0	0	0	0	0
Loring, Wolcott & Coolidge Fiduciary Advisors, LLP	6,900	6,900	6,900	6,565	7,090	7,090	8,990	8,990
Los Angeles Capital Management And Equity Research, Inc	334,520	468,507	781,213	133,017	137,738	44,576	33,503	356,989
Louisiana State Employees' Retirement System	24,800	24,200	23,900	23,300	23,600	23,800	23,100	23,300
LourdMurray	38,862	38,804	38,807	38,753	38,917	38,723	60,998	58,683
Lowe, Brockenbrough & Company, Inc	0	0	0	0	0	0	29,122	34,392
LPL Financial LLC	0	0	0	0	12,145	23,701	23,450	25,484

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020

L2 Asset Management, LLC	0	0	0	0	0	0	0	223
La Banque Postale Asset Management	24,864	0	0	0	0	0	34,649	34,649
Ladenburg Thalmann Asset Management Inc (LTAM)	17,896	16,724	20,298	20,592	21,169	19,599	20,869	20,869
LaFleur & Godfrey LLC	272,390	266,607	69,032	0	67,155	0	0	0
LähiTapiola Varainhoito Oy	0	0	0	0	600	600	2,500	5,000
Landaas & Company	496	0	0	0	0	0	0	0
Landscape Capital Management, L L C	0	25,437	25,216	23,955	23,955	29,303	0	69,988
Lantz Financial, LLC	0	0	0	7,016	0	0	0	0
LaSalle Investment Management Securities B V	0	0	0	0	0	0	0	0
LaSalle Street Capital Management, LLC NLE	31,537	26,271	0	0	0	0	0	0
Laurie J Hall Trustee	0	0	0	0	0	0	0	0
Laurion Capital Management LP	0	0	0	0	12,706	100	0	0
Lawrence W Kelly & Associates, Inc	10,260	10,260	7,360	7,360	7,060	2,010	310	310
Lazard Asset Management, L L C	6,123,027	5,817,027	5,817,027	5,815,900	5,536,800	5,536,800	6,417,530	6,417,530
LBBW Asset Management Investmentgesellschaft mbH	0	0	1,849	1,849	1,849	1,849	1,849	1,849
Leavell Investment Management, Inc	0	0	0	0	0	0	0	0
Lebenthal Asset Management, LLC	8,410	8,410	8,410	0	0	0	0	0
Ledyard National Bank	2,900	3,000	271	0	0	0	0	0
Lee Financial Company, L L C	2,625	2,625	2,625	2,625	2,625	2,625	2,625	2,625
Lee, Danner & Bass, Inc	89,922	81,177	75,002	73,613	69,063	41,171	0	0
Legacy Financial Advisors, Inc	378	378	378	439	0	0	0	0
Legacy Private Trust Co	0	0	0	0	0	0	0	0
Legal & General Investment Management America Inc	13,964	23,559	23,559	23,559	23,559	23,559	23,559	23,559
Legal & General Investment Management Ltd	1,758,716	1,805,545	1,907,631	2,321,941	2,329,209	2,294,891	2,306,005	2,395,851
Leith Wheeler Investment Counsel Ltd	0	0	0	0	0	0	0	0
Lenox Wealth Advisors, LLC	0	0	0	0	0	0	19	0
Lenox Wealth Management, Inc NLE	0	0	0	0	0	229	0	1,464
Letko, Brosseau & Associates Inc	6,500	6,500	0	6,500	0	0	0	0
Liberty Mutual Insurance Group	15,275	15,275	15,275	0	0	0	0	0
LifePlan Financial Group, Inc NLE	72	72	72	72	72	72	72	72
Lincoln Capital Corporation	0	0	0	0	0	0	0	0
Lincoln Investment Advisors Corporation	0	0	0	0	0	0	0	0
Lindbrook Capital, LLC	0	0	168	135	136	391	68	0
Linscomb & Williams, Inc	68,253	68,087	62,740	65,549	65,270	65,301	73,068	62,703
Litman Gregory Asset Management, LLC	0	0	0	91,420	91,420	31,420	26,820	26,820
Livförsäkringsbolaget Skandia, ömsesidigt	5,809	3,409	3,409	3,409	5,109	5,109	2,109	4,009
LLB Asset Management AG	4,269	4,269	5,787	2,509	5,787	5,787	5,787	5,787
LMCG Investments, LLC	181,638	178,694	43,882	45,654	46,406	57,513	63,848	61,166
LMR Partners LLP	9,595	22,504	11,299	16,070	0	16,196	0	0
LoCorr Fund Management, LLC	0	0	0	0	3,002	7,231	8,393	7,006
LOGIQ Asset Management Ltd	7,200	7,200	7,200	7,200	0	0	0	0
Lombard Odier Asset Management (Europe) Ltd	0	4,259	0	0	0	0	0	0
Lombard Odier Gestión (España) SGIC, S A	0	0	0	0	0	0	0	0
Longview Partners LLP	0	0	0	0	0	0	0	0
Loomis, Sayles & Company, L P	0	0	0	0	0	0	0	0
Loring, Wolcott & Coolidge Fiduciary Advisors, LLP	8,990	5,715	5,375	5,375	4,675	4,675	4,675	500
Los Angeles Capital Management And Equity Research, Inc	5,521	0	0	0	15,547	9,433	0	45,271
Louisiana State Employees' Retirement System	22,500	22,400	19,900	19,800	18,900	18,100	17,900	16,000
LourdMurray	58,775	58,775	59,026	37,908	37,573	37,573	37,573	37,573
Lowe, Brockenbrough & Company, Inc	34,217	34,217	21,312	21,597	21,522	20,072	18,397	0
LPL Financial LLC	27,631	22,445	22,219	13,850	25,476	25,846	15,003	62,241

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018
LS Investment Advisors, LLC	9,258	7,490	8,034	9,264	9,759	10,808	13,609	14,692
LSV Asset Management	1,575	0	0	0	240,700	240,700	240,700	154,800
Lucas Capital Management, L L C	5,960	0	5,400	15,200	0	0	0	0
Luminus Management, L L C	0	0	0	0	0	0	0	0
Luther King Capital Management Corp	5,575	16,425	36,599	40,155	36,525	37,383	15,975	13,525
LVM Capital Management, Ltd	0	60,455	0	0	0	0	0	0
Lyxor Asset Management NLE	45,940	132	49,229	0	0	0	0	83,470
Lyxor Funds Solutions S A NLE	0	0	0	0	0	0	0	0
M Holdings Securities, Inc	0	0	0	0	0	0	4,750	0
M&R Capital Management Inc	7,607	7,607	7,432	8,892	7,647	4,876	4,260	4,260
M Elsasser Vermögensverwaltung Wealth Management GmbH	0	0	0	0	0	0	0	0
MacKay Shields LLC	126,018	41,935	92,477	94,400	55,748	50,754	54,135	64,121
Mackenzie Financial Corporation	1,209,888	1,304,485	1,189,756	1,219,534	1,225,632	1,226,033	1,208,728	169,673
Macquarie Investment Management	0	0	79,172	79,172	79,172	79,172	79,172	0
Macquarie Investment Management Global Ltd	10,400	10,400	11,800	10,300	10,300	9,900	3,400	3,400
MacroView Investment Management LLC	0	0	0	0	0	0	0	0
Madison Asset Management LLC	299,643	429,748	411,098	309,587	178,310	288,740	372,517	378,298
Madrona Financial Services, LLC	0	3,144	3,144	0	0	0	0	0
Madrona Funds, LLC NLE	0	0	0	0	0	367	367	397
Magnetar Capital Partners LP	0	0	0	0	0	0	9,941	0
MAI Capital Management, LLC	0	3,135	0	0	0	0	0	0
MainStreet Advisors	0	0	0	0	0	0	0	0
Mairs and Power, Inc	0	0	0	5,937	6,024	6,352	0	0
MANA Advisors LLC	0	0	0	0	0	0	10,470	0
Managed Account Advisors LLC	656,535	720,451	1,356,658	1,528,593	1,606,680	1,561,048	754,740	971,811
Manchester Capital Management LLC	100	100	100	100	100	100	100	100
Manchester Financial, Inc	0	0	0	0	0	0	0	0
Manitou Investment Management Ltd	0	0	0	0	0	0	0	26,090
Manning & Napier Advisors, LLC	0	0	0	0	0	0	0	42,542
Mansartis	17,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000
Manulife Investment Management (North America) Limited	445,423	379,043	562,426	622,445	430,213	426,730	425,445	454,529
Marble Harbor Investment Counsel, LLC	6,050	5,650	5,350	3,950	0	0	0	0
Marco Investment Management, L L C	104,685	118,346	121,772	123,924	124,075	153,130	138,075	142,625
Mariner Wealth Advisors	31,982	32,260	36,855	25,023	23,956	23,956	23,956	23,956
Mariner Wealth Advisors-Cincinnati, LLC	3,613	3,813	4,013	0	0	0	0	0
Mariner Wealth Advisors-NYC, LLC NLE	0	55	0	0	0	0	0	0
Mark Sheptoff Financial Planning, LLC	0	0	0	0	0	0	0	0
Marketocracy Capital Management, LLC	200	200	0	0	0	0	0	0
Markston International LLC	101,707	93,080	81,279	83,800	69,791	64,194	4,878	4,878
Marque Millennium Capital Management LLC	43,100	43,100	43,100	43,100	43,100	0	0	0
Marquette Wealth Management	0	0	0	0	0	0	0	0
Marret Asset Management Inc	0	0	0	0	0	0	0	0
Marshall Wace LLP	117,125	200,082	0	0	0	252,706	10,924	0
Mason Capital Partners	12,750	22,410	8,680	8,735	8,595	8,725	8,794	13,545
Mason Street Advisors, LLC	50,986	51,328	51,904	52,470	52,791	52,881	53,061	53,134
Massachusetts Mutual Life Insurance Company	0	0	7,306	7,306	12,118	9,023	7,657	8,246
Masters Capital Management, L L C	0	0	0	0	0	0	0	0
Mawer Investment Management Ltd	17,918	17,918	17,918	17,918	17,918	17,918	0	0
MB Financial Bank, N A NLE	3,807	630	500	500	500	400	0	0
McDonald Capital Management	0	0	0	0	0	0	0	0
MCF Advisors LLC	1,000	0	0	0	0	0	0	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020

LS Investment Advisors, LLC	13,773	12,699	13,730	13,664	14,396	15,467	13,515	11,997
LSV Asset Management	164,400	140,000	0	0	0	0	0	0
Lucas Capital Management, L L C	0	0	0	0	0	0	0	0
Luminus Management, L L C	0	0	0	0	0	22,800	38,000	0
Luther King Capital Management Corp	13,590	13,825	0	7,325	7,325	0	0	0
LVM Capital Management, Ltd	0	0	0	0	0	0	0	0
Lyxor Asset Management NLE	590	146,977	31,996	31,996	31,996	31,996	31,996	31,996
Lyxor Funds Solutions S A NLE	206,351	0	0	0	0	0	0	0
M Holdings Securities, Inc	0	0	0	0	0	0	0	0
M&R Capital Management Inc	4,160	3,760	3,760	2,225	2,225	1,900	1,500	0
M Elsasser Vermögensverwaltung Wealth Management GmbH	0	0	0	0	14,500	14,500	0	0
MacKay Shields LLC	61,849	0	112,088	133,445	152,783	62,642	58,522	58,034
Mackenzie Financial Corporation	158,448	124,174	10,059	11,308	11,001	10,892	9,253	0
Macquarie Investment Management	0	0	824	824	842	0	0	0
Macquarie Investment Management Global Ltd	1,100	9,000	8,300	7,500	7,500	7,500	6,900	6,900
MacroView Investment Management LLC	0	0	85	99	0	0	0	0
Madison Asset Management LLC	265,384	266,990	188,900	188,900	188,900	190,800	189,702	147,900
Madrona Financial Services, LLC	0	0	0	0	0	0	0	0
Madrona Funds, LLC NLE	2,948	2,753	0	0	0	0	0	0
Magnetar Capital Partners LP	0	0	0	0	0	0	0	0
MAI Capital Management, LLC	0	0	0	0	0	0	0	0
MainStreet Advisors	0	0	0	0	0	0	0	7,888
Mairs and Power, Inc	0	4,304	0	6,702	7,097	12,164	9,895	0
MANA Advisors LLC	0	0	0	0	0	0	8,763	0
Managed Account Advisors LLC	952,831	916,982	543,645	798,120	719,708	688,252	527,054	642,595
Manchester Capital Management LLC	100	100	100	100	0	0	0	0
Manchester Financial, Inc	0	0	0	0	524	0	504	504
Manitou Investment Management Ltd	26,090	720,581	583,156	826,619	829,759	1,166,615	1,459,159	1,903,933
Manning & Napier Advisors, LLC	90,639	96,259	79,724	79,724	107,318	107,318	107,318	107,318
Mansartis	7,000	0	0	0	0	0	0	0
Manulife Investment Management (North America) Limited	427,176	279,224	392,516	338,473	369,065	393,638	347,732	412,823
Marble Harbor Investment Counsel, LLC	0	0	0	0	0	0	0	0
Marco Investment Management, L L C	140,175	140,488	120,203	113,400	128,600	189,400	183,855	82,710
Mariner Wealth Advisors	26,443	21,168	20,395	21,107	38,771	47,279	47,181	57,021
Mariner Wealth Advisors-Cincinnati, LLC	0	0	0	0	0	0	0	0
Mariner Wealth Advisors-NYC, LLC NLE	0	0	0	0	0	0	0	0
Mark Sheptoff Financial Planning, LLC	0	0	0	0	0	0	300	0
Marketocracy Capital Management, LLC	0	0	0	0	0	0	0	0
Markston International LLC	4,295	4,295	3,465	2,045	2,045	1,240	800	700
Marque Millennium Capital Management LLC	0	0	0	0	0	0	0	0
Marquette Wealth Management	0	0	0	0	0	150	0	0
Marret Asset Management Inc	0	0	0	0	0	22,434	0	0
Marshall Wace LLP	0	0	9,254	9,254	104,730	0	45,522	990
Mason Capital Partners	13,595	13,510	13,400	13,590	13,555	13,955	13,955	13,965
Mason Street Advisors, LLC	53,617	53,770	53,510	53,556	53,612	53,562	53,652	53,652
Massachusetts Mutual Life Insurance Company	8,099	0	0	0	0	0	0	0
Masters Capital Management, L L C	0	0	0	0	0	0	0	1,100,000
Mawer Investment Management Ltd	0	0	0	0	0	0	0	0
MB Financial Bank, N A NLE	0	0	0	0	0	0	0	0
McDonald Capital Management	0	0	0	0	0	0	2,000	2,200
MCF Advisors LLC	0	0	0	0	0	0	0	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018
McIlrath & Eck, LLC	0	0	0	0	0	0	501	410
McMillion Capital Management, Inc	0	0	0	0	0	0	0	0
Meshane Partners	739	460	460	368	708	0	0	9
MD Financial Management Inc	0	0	0	0	0	0	0	0
Meadow Creek Investment Management LLC	0	0	4,912	6,624	7,232	29,440	42,896	17,632
MEAG Munich ERGO Kapitalanlagegesellschaft mbH	0	0	0	0	3,000	6,000	24,243	6,000
Measured Wealth Private Client Group, LLC	0	0	0	0	0	0	0	0
Mediobanca SGR S p A	12,070	19,923	20,923	20,923	10,923	12,596	12,596	14,408
Mediolanum Asset Management Limited	78,859	78,859	73,813	73,813	73,813	73,813	92,940	90,668
Mediolanum Gestione Fondi SGR p A	0	0	0	0	0	0	6,135	66,135
Meeder Asset Management, Inc	9,376	8,342	8,840	3,470	0	0	0	0
Meiji Yasuda Asset Management Company Ltd	3,593	4,913	4,913	4,913	4,913	4,913	4,913	0
Mellon Investments Corporation	1,921,513	1,941,274	1,931,052	1,905,466	1,643,042	1,661,359	1,650,577	1,676,952
Menta Capital LLC	9,821	0	0	0	0	0	0	0
Mercer Capital Advisers, Inc	1,786	1,786	1,486	1,486	1,486	1,486	1,486	1,486
Merian Global Investors (UK) Limited NLE	0	0	700	0	0	17,600	17,300	0
Meridian Wealth Management, LLC	0	0	0	0	0	0	0	0
Merriman Wealth Management, LLC	32,471	29,841	26,434	63,030	57,915	50,740	12,255	10,310
Messner & Smith Theme Value Investment Management, Ltd NLE	0	0	8,577	10,155	10,155	54,235	38,666	0
Metaurus Advisors LLC	0	0	0	0	0	0	0	0
MetLife Investment Management, LLC	0	0	0	0	0	0	117,864	114,792
Metropolitan Life Insurance Co (US)	218,620	221,397	219,734	198,201	183,990	181,015	59,912	60,334
Meyer Handelman Company LLC	5,238	5,238	5,088	5,088	5,088	7,788	7,788	0
MFC Asset Management PCL	263	263	263	263	263	263	263	0
MFP Investors, LLC	0	0	0	10,000	10,000	10,000	10,000	10,000
MFS Investment Management	1,706,950	1,668,406	1,697,256	1,671,256	1,056,700	974,800	1,170,000	1,455,900
Michigan Department of Treasury	181,445	182,445	174,089	124,694	124,994	115,594	111,694	112,294
Mid-Continent Capital, LLC	350	350	350	350	350	350	350	350
Middlefield Capital Corporation	10,000	7,500	7,500	7,500	0	0	0	0
Migros Bank Asset Management	3,200	3,200	400	400	1,200	1,200	1,200	1,200
Millennium Management LLC	635,768	0	177,117	147,749	0	0	592,227	0
Miller/Howard Investments, Inc	0	76,191	35,393	0	0	0	0	0
Milliman Financial Risk Management, LLC	0	0	0	0	0	0	6,935	4,239
MinichMacGregor Wealth Management, LLC	14	14	14	14	14	14	14	14
Mirae Asset Global Investments (USA) LLC	1,342	2,129	3,568	4,192	2,877	2,983	3,301	5,865
Mirova	0	0	15,014	0	0	0	0	0
Mirova US LLC	0	0	0	0	0	0	0	0
Mitchell, McLeod, Pugh & Williams, Inc	3,837	5,355	6,350	6,350	5,880	5,880	5,655	5,655
Mitsubishi UFJ Kokusai Asset Management Co., Ltd	56,594	58,536	58,752	61,040	54,637	57,875	57,890	52,492
Mitsubishi UFJ Morgan Stanley Securities Co., Ltd	570	570	590	290	0	0	0	0
Mitsubishi UFJ Trust and Banking Corporation	1,142,657	1,168,693	1,144,796	1,128,593	1,338,126	1,350,236	1,384,710	1,982,320
Mizuho Asset Management Co., Ltd NLE	5,370	3,352	0	0	0	0	0	0
Mizuho Bank, Ltd	77	77	0	0	0	0	0	0
Mizuho Securities Co., Ltd	0	0	0	0	0	0	0	0
Mizuho Trust & Banking Co., Ltd	649,119	609,996	0	0	0	0	0	0
MLC Asset Management	289	406	0	0	0	10,120	0	0
MLC Investments Limited	10,133	10,537	7,898	7,883	20,143	27,780	12,706	12,720
MML Investors Services, LLC	0	0	0	0	25,326	27,913	21,114	13,666
Mn Services Vermogensbeheer B V	9,610	9,742	9,742	10,119	61,634	62,734	62,734	59,234
Moneta Group Investment Advisors, LLC	0	0	0	0	0	0	0	0
Monetta Financial Services Inc	11,000	41,000	41,000	0	0	0	0	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020

McIlrath & Eck, LLC	50	233	143	144	144	145	146	147
McMillion Capital Management, Inc	0	0	0	0	0	0	0	2,000
Meshane Partners	200	0	0	0	23	28	0	0
MD Financial Management Inc	9,289	9,289	8,945	8,945	11,197	11,197	11,197	11,197
Meadow Creek Investment Management LLC	9,888	16,864	25,056	18,176	12,032	14,912	14,912	14,912
MEAG Munich ERGO Kapitalanlagegesellschaft mbH	6,000	6,000	107,774	21,357	21,357	32,268	11,209	0
Measured Wealth Private Client Group, LLC	0	915	0	0	0	0	0	0
Mediobanca SGR S p A	7,408	24,686	5,929	5,929	1,000	1,000	1,300	1,300
Mediolanum Asset Management Limited	46,754	257,747	0	0	4,249	0	13,528	0
Mediolanum Gestione Fondi SGR p A	6,135	210,242	6,135	6,135	56,135	0	0	0
Meeder Asset Management, Inc	0	0	0	3,267	3,328	509	3,843	27,353
Meiji Yasuda Asset Management Company Ltd	4,913	4,913	0	0	7,503	0	0	0
Mellon Investments Corporation	1,682,268	1,689,598	1,435,934	2,225,036	1,406,872	1,490,904	2,906,918	2,860,783
Menta Capital LLC	0	0	0	0	0	0	0	0
Mercer Capital Advisers, Inc	1,486	1,486	1,486	1,486	1,100	1,100	1,100	0
Merian Global Investors (UK) Limited NLE	0	0	0	0	0	0	0	48,281
Meridian Wealth Management, LLC	0	0	9,729	0	0	0	0	0
Merriman Wealth Management, LLC	0	0	0	0	0	0	0	0
Messner & Smith Theme Value Investment Management, Ltd NLE	0	0	0	0	0	0	0	0
Metaurus Advisors LLC	1,161	0	0	0	0	0	0	0
MetLife Investment Management, LLC	112,497	111,266	108,544	106,721	103,618	102,312	99,893	96,928
Metropolitan Life Insurance Co (US)	59,074	57,048	55,415	52,615	57,056	55,880	56,432	56,215
Meyer Handelman Company LLC	0	0	0	0	0	0	0	0
MFC Asset Management PCL	0	0	0	0	0	0	0	0
MFP Investors, LLC	0	0	0	0	0	0	0	0
MFS Investment Management	1,321,000	1,271,098	1,187,098	1,096,298	1,086,074	1,023,174	927,576	1,150,226
Michigan Department of Treasury	113,094	113,994	108,694	108,194	89,994	90,394	90,894	86,194
Mid-Continent Capital, LLC	350	350	300	300	0	0	0	0
Middlefield Capital Corporation	0	0	0	0	0	0	0	0
Migros Bank Asset Management	1,200	1,200	0	0	0	0	0	0
Millennium Management LLC	0	88,972	100,113	106,604	8,200	0	481,721	25,025
Miller/Howard Investments, Inc	0	0	0	0	0	0	0	0
Milliman Financial Risk Management, LLC	6,921	6,827	2,696	5,691	6,461	5,820	5,928	1,046
MinichMacGregor Wealth Management, LLC	15	15	15	0	0	0	0	0
Mirae Asset Global Investments (USA) LLC	6,748	18,673	18,019	18,172	17,705	15,729	16,348	15,981
Mirova	2,660	3,865	0	0	0	1,364	1,999	1,857
Mirova US LLC	0	0	0	50	731	862	1,159	1,239
Mitchell, McLeod, Pugh & Williams, Inc	6,655	6,655	0	0	0	0	0	0
Mitsubishi UFJ Kokusai Asset Management Co., Ltd	51,513	51,281	48,685	52,503	62,133	64,764	76,554	72,304
Mitsubishi UFJ Morgan Stanley Securities Co., Ltd	0	0	0	0	0	0	0	0
Mitsubishi UFJ Trust and Banking Corporation	1,977,305	1,507,938	1,518,792	1,494,565	1,518,352	1,386,895	1,421,865	676,350
Mizuho Asset Management Co., Ltd NLE	0	0	0	0	0	0	0	0
Mizuho Bank, Ltd	0	0	0	0	0	0	0	0
Mizuho Securities Co., Ltd	0	0	900	900	0	0	0	0
Mizuho Trust & Banking Co., Ltd	0	0	0	0	0	0	0	0
MLC Asset Management	0	0	0	0	0	0	0	0
MLC Investments Limited	13,097	5,137	5,112	5,218	5,314	5,314	5,231	5,143
MML Investors Services, LLC	8,887	7,804	0	0	0	0	0	0
Mn Services Vermogensbeheer B V	59,234	63,434	64,934	64,934	192,634	327,200	338,800	318,000
Moneta Group Investment Advisors, LLC	373	0	0	0	0	0	0	0
Monetta Financial Services Inc	0	0	0	0	0	0	0	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018

Monongahela Capital Management	0	0	0	0	0	0	0	0
Monroe Bank & Trust	0	0	400	200	400	0	200	200
Montgomery Investment Management Inc	100,344	116,214	103,259	101,859	99,566	100,066	98,816	100,206
Monument Wealth Management	0	0	0	0	0	0	0	0
Monyx Asset Management	1,306	1,306	0	0	0	0	0	0
Moody National Bank	6,598	6,598	6,598	6,598	6,598	5,273	0	0
Moody, Lynn & Lieberman, LLC	0	39,764	91,687	27,199	0	0	0	0
Moore Capital Management, LP	5,555	0	0	0	0	0	0	0
Moors & Cabot Inc	23,722	24,117	27,169	25,284	24,593	25,749	20,892	21,171
Morgan Stanley & Co International Plc	4,457	9,358	15,650	19,788	22,318	22,318	8	8
Morgan Stanley & Co LLC	1,217,768	57,053	976,945	1,840,856	361,881	328,234	831,138	341,532
Morgan Stanley Investment Management Inc (US)	48,146	36,199	39,570	44,198	19,317	14,922	17,826	13,305
Morgan Stanley Investment Management Ltd (UK)	0	0	0	0	1,488	1,488	1,488	1,810
Morgan Stanley Smith Barney LLC	574,948	576,044	664,523	610,608	694,317	671,989	641,651	559,147
Morgens, Waterfall, Vintiadis & Co , Inc	0	45,000	44,000	0	0	0	0	0
Morse Asset Management, Inc	0	37,325	45,065	4,000	0	0	0	0
Mosaic Family Wealth, LLC	230	1,166	231	253	253	353	253	253
MOTCO	0	0	465	465	0	0	300	500
Mount Yale Investment Advisors, LLC	0	0	0	0	0	0	0	400
Mountain Capital Investment Advisors, Inc	0	0	0	0	95	95	0	0
Mraz, Amerine & Associates, Inc	4,594	4,594	4,594	0	0	0	0	11,389
MU Investments Co , Ltd	2,050	0	0	0	0	0	0	0
MUFG Securities EMEA plc	0	0	0	0	0	0	0	0
Municipal Employees' Retirement System of Michigan	11,990	11,990	12,080	12,240	12,240	9,840	16,550	16,550
Murphy Capital Management, Inc	11,901	10,951	10,951	10,701	8,386	6,421	6,971	7,141
Murphy Pohlad Asset Management LLC	12,920	12,920	17,770	21,265	32,365	36,685	37,035	38,500
Mutual Advisors, LLC	0	0	0	0	0	0	0	0
Mutual of America Capital Management LLC	43,937	44,261	45,134	47,488	46,269	49,286	50,419	48,879
MV Capital Management, Inc	350	350	450	450	350	350	350	350
National Asset Management, Inc	0	3,542	4,912	18,661	27,562	28,486	29,908	23,767
National Pension Service	267,758	291,836	311,092	329,429	363,966	378,977	419,376	441,543
Natixis Wealth Management SA	0	0	0	0	0	0	0	0
NBT Bank N A	31,804	31,754	31,915	31,731	32,450	29,579	29,641	30,267
Nelson, Van Denburg & Campbell Wealth Management Group, LLC	0	400	48	0	0	91	191	100
Neo Ivy Capital Management LLC	0	0	0	0	0	0	0	0
Neuberger Berman Asset Management Ireland Ltd	0	0	0	0	0	0	0	0
Neuberger Berman, LLC	464,704	479,153	477,368	348,259	38,898	24,508	17,085	19,435
Neuburgh Advisers LLC	0	0	6,754	9,108	9,944	40,480	58,982	24,244
Nevastar Finance Ltd	4,561	4,561	4,561	4,561	0	0	0	0
New England Securities Corp NLE	41	41	0	0	0	0	0	0
New Jersey Division of Investment	894,000	1,008,000	1,245,000	1,729,000	1,402,000	1,370,800	1,734,800	1,940,800
New Mexico Educational Retirement Board	44,099	38,299	40,599	38,499	35,399	35,399	36,599	36,299
New York Life Investment Management, LLC	1,129	580	557	49	49	49	49	49
New York State Common Retirement Fund	1,363,181	1,347,646	1,270,593	1,180,377	1,266,843	1,392,662	1,368,988	1,441,823
New York State Teachers' Retirement System	646,370	638,486	636,513	619,229	581,871	581,906	581,906	581,938
Newgate Capital Management LLC NLE	10,239	10,239	10,239	0	0	0	0	0
Newscape Capital Group Limited	400	500	0	0	0	0	0	0
NEXT Financial Group, Inc	363	457	1,144	1,289	1,289	1,600	0	0
NFI Investment Group, LLC	0	66,640	1,736,490	1,599,745	1,259,405	0	0	0
Nikko Asset Management Co , Ltd	8,408	8,408	8,608	8,608	8,608	8,608	8,608	8,608
Nine Chapters Capital Management LLC NLE	0	0	14,100	0	0	0	0	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020
Monongahela Capital Management	3,000	3,000	3,000	3,000	8,414	0	0	0
Monroe Bank & Trust	200	0	0	0	0	0	0	0
Montgomery Investment Management Inc	100,206	100,046	97,846	97,631	94,631	94,631	69,911	69,901
Monument Wealth Management	0	39	0	0	0	0	0	0
Monyx Asset Management	0	0	0	0	0	0	0	0
Moody National Bank	0	112	502	653	0	0	0	0
Moody, Lynn & Lieberman, LLC	0	0	0	0	0	0	0	0
Moore Capital Management, LP	0	0	0	0	0	0	0	0
Moors & Cabot Inc	21,599	23,126	12,222	12,503	12,425	15,952	12,953	0
Morgan Stanley & Co International Plc	8	8	0	0	0	0	3,700	3,700
Morgan Stanley & Co LLC	165,965	742,366	1,329,540	37,621	198,187	122,528	597,581	118,260
Morgan Stanley Investment Management Inc (US)	14,192	15,192	19,421	20,070	19,970	16,383	16,792	19,750
Morgan Stanley Investment Management Ltd (UK)	0	0	0	0	0	0	0	0
Morgan Stanley Smith Barney LLC	582,128	565,491	496,462	516,486	478,648	453,963	405,675	449,832
Morgens, Waterfall, Vintiadi & Co , Inc	0	0	0	0	0	0	0	0
Morse Asset Management, Inc	0	0	0	0	0	0	0	0
Mosaic Family Wealth, LLC	253	166	83	83	0	0	0	0
MOTCO	200	200	0	0	97	0	0	24
Mount Yale Investment Advisors, LLC	400	400	0	0	0	0	0	0
Mountain Capital Investment Advisors, Inc	0	0	0	0	0	0	0	0
Mraz, Amerine & Associates, Inc	12,089	12,089	11,889	11,889	11,889	11,889	10,414	0
MU Investments Co , Ltd	0	0	0	0	0	0	0	0
MUFG Securities EMEA plc	428	10,369	0	0	0	0	0	0
Municipal Employees' Retirement System of Michigan	15,480	15,480	15,480	10,450	13,360	13,360	13,590	13,590
Murphy Capital Management, Inc	5,441	5,191	0	0	0	0	0	0
Murphy Pohlad Asset Management LLC	45,325	48,765	34,225	39,045	37,990	28,940	20,940	144,075
Mutual Advisors, LLC	4,443	4,443	0	6,353	0	0	0	0
Mutual of America Capital Management LLC	49,298	49,518	50,112	50,239	50,522	50,071	51,133	51,277
MV Capital Management, Inc	350	350	350	350	350	350	0	0
National Asset Management, Inc	11,862	11,700	8,665	0	0	0	0	0
National Pension Service	420,508	415,602	435,116	453,838	483,222	509,842	0	0
Natixis Wealth Management SA	0	0	5,706	13,959	11,453	5,981	5,981	5,936
NBT Bank N A	30,364	30,009	30,890	30,971	31,398	26,586	24,208	14,678
Nelson, Van Denburg & Campbell Wealth Management Group, LLC	100	100	0	0	0	0	0	0
Neo Ivy Capital Management LLC	0	0	0	0	0	0	18,459	4,709
Neuberger Berman Asset Management Ireland Ltd	0	0	0	0	0	23,918	23,918	41,958
Neuberger Berman, LLC	21,975	21,664	0	6,195	9,769	0	0	0
Neuburgh Advisers LLC	13,596	23,188	34,452	24,992	16,544	20,504	20,504	20,504
Nevastar Finance Ltd	0	0	0	0	0	0	0	0
New England Securities Corp NLE	0	0	0	0	0	0	0	0
New Jersey Division of Investment	1,837,800	1,690,400	1,791,400	1,482,400	1,436,000	290,100	271,622	271,622
New Mexico Educational Retirement Board	35,199	34,099	32,599	31,599	30,799	28,999	28,999	23,649
New York Life Investment Management, LLC	49	49	49	0	0	0	0	0
New York State Common Retirement Fund	1,280,306	1,289,181	1,263,606	1,617,156	1,312,731	1,281,695	1,224,020	597,700
New York State Teachers' Retirement System	569,504	564,224	545,142	544,885	543,517	543,519	543,524	510,924
Newgate Capital Management LLC NLE	0	0	0	0	0	0	0	0
Newscape Capital Group Limited	0	0	0	0	0	0	0	0
NEXT Financial Group, Inc	0	75	1,001	75	3,131	3,132	2,374	3,308
NFI Investment Group, LLC	0	0	0	0	0	0	0	0
Nikko Asset Management Co , Ltd	8,608	1,183	10,417	11,443	11,851	11,358	12,560	14,574
Nine Chapters Capital Management LLC NLE	0	0	0	0	0	0	0	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018

Ninety One UK Limited	0	0	0	0	0	0	0	0
Nippon Life Global Investors Singapore Limited	0	0	4,141	4,141	4,141	4,141	7,086	7,086
Nippon Life Insurance Company	21,790	21,395	22,321	19,865	19,788	20,271	0	0
NISA Investment Advisors, L L C	66,211	65,818	84,613	91,743	80,555	79,955	81,213	95,818
Nissay Asset Management Corp	4,400	0	0	0	0	0	59,991	60,963
NNIP Advisors B V	60,551	71,942	6,261	2,495	2,495	104,100	162,033	190,082
NNIP Asset Management B V	0	43,403	43,403	0	0	29,632	51,316	118,753
Nomura Asset Management (UK) Ltd	5,000	5,000	4,700	1,784	1,784	1,784	1,784	1,784
Nomura Asset Management Co , Ltd	54,261	56,271	52,221	45,172	46,772	49,781	51,951	57,062
Nomura Asset Management Singapore Ltd	0	12,789	0	0	0	0	0	90
Nomura Securities Co , Ltd	101,425	0	34,774	0	31,310	26,305	48,074	34,076
Nordea Funds Oy	15,581	15,581	19,530	19,659	19,802	20,088	20,032	20,529
Nordea Investment Management AB (Denmark)	8,422	8,422	12,371	12,371	12,371	12,371	12,371	12,371
Norges Bank Investment Management (NBIM)	3,400,978	3,314,792	3,359,979	3,539,903	3,599,639	3,795,880	3,795,880	3,980,480
NORINCHUKIN BANK	19,853	20,312	23,017	24,673	26,396	28,353	30,457	34,952
Norinchukin Zenkyoren Asset Management Co , Ltd	0	0	0	0	0	0	0	0
North Point Portfolio Managers Corp	97,406	154,618	155,260	156,471	156,354	155,316	0	0
North Star Asset Management Inc	4,695	4,435	4,260	4,010	0	0	0	0
North Star Investment Management Corporation	300	300	0	100	200	200	200	200
NorthCoast Asset Management LLC	27,896	426,893	359,850	0	0	0	0	0
Northeast Financial Consultants Inc	4,783	4,783	4,783	4,783	4,783	4,783	4,783	0
Northern Capital Management, LLC	0	0	0	77,830	65,140	70,935	49,755	77,460
Northern Trust Fund Managers (Ireland) Limited	0	0	0	0	0	400	400	400
Northern Trust Global Investments	915,891	907,701	901,928	918,893	918,399	866,561	855,019	787,858
Northern Trust Global Investments Limited	718,582	728,012	673,993	668,899	669,058	643,577	655,042	592,863
Northern Trust Investments, Inc	3,331,417	3,283,587	3,236,222	3,316,216	3,224,142	3,390,156	3,328,419	3,326,765
Northside Capital Management, LLC	0	0	0	16,300	0	0	0	0
Northstar Asset Management LLC	7,647	7,097	7,097	7,048	6,278	0	0	0
Northstar Investment Advisors, LLC	0	4,400	0	0	0	0	0	0
Northwest Wealth Management, LLC	0	0	0	0	0	0	0	354
Northwestern Mutual Capital, LLC	9,458	7,633	7,450	5,460	5,404	6,137	5,025	5,705
Northwestern Mutual Investment Management Company LLC	14,441	37,538	43,569	76,752	87,285	85,404	86,043	69,431
Norway Savings Bank	0	0	18,409	13,934	13,834	14,544	14,532	14,400
NS Partners Ltd	49,275	49,220	80,845	81,203	82,920	82,877	0	0
Numeric Investors LLC	21,000	0	0	0	0	0	0	0
NumerixS Quant	0	43,058	4,301	0	0	11,230	4,500	4,652
Nuveen Asset Management, LLC	26,467	24,437	71,971	15,223	6,181	6,127	9,610	9,718
Nuveen LLC	4,748,483	3,637,406	2,454,090	2,261,268	2,293,956	1,937,546	1,851,257	1,857,851
NuWave Investment Management, LLC	25	0	0	0	0	0	0	0
NWQ Investment Management Company, LLC	678,918	73,091	71,432	71,507	71,057	70,982	70,982	70,082
Nykredit Bank AS	4,580	4,580	7,153	9,188	9,188	11,202	11,202	6,045
Nymbus Capital	2,800	5,100	3,600	4,400	3,400	3,700	4,700	4,000
OakBrook Investments, LLC NLE	0	22,250	0	0	4,850	0	0	0
Oakview Capital Management, L P	0	0	727	727	529	0	0	529
Oakworth Capital Bank	343	70	0	0	0	0	0	0
Oarsman Capital Inc	5,143	5,500	4,736	5,825	29,660	29,645	30,534	31,455
Oberbanscheidt & Cie Vermögensverwaltungsgesellschaft mbH	0	0	3,500	0	0	0	0	0
Occidental Asset Management, LLC	0	0	0	0	0	0	0	0
ODIN Forvaltning AS	70,000	70,000	80,000	85,000	85,000	85,000	82,500	82,500
Ofi Asset Management	0	0	0	1,662	1,662	1,662	1,662	1,662
OFI SteelPath, Inc NLE	0	2,500	3,100	3,036	4,536	4,536	4,436	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020
Ninety One UK Limited	192,698	157,996	158,890	158,890	0	0	0	0
Nippon Life Global Investors Singapore Limited	7,086	7,086	0	0	0	0	14,615	14,615
Nippon Life Insurance Company	0	0	0	0	0	0	0	0
NISA Investment Advisors, L L C	144,392	152,492	64,862	73,012	68,979	58,729	57,339	101,755
Nissay Asset Management Corp	62,322	58,362	53,834	52,517	29,178	30,847	32,200	33,331
NNIP Advisors B V	121,612	159,781	196,446	213,052	137,267	205,312	0	0
NNIP Asset Management B V	62,439	31,464	31,464	164,079	140,791	82,050	0	0
Nomura Asset Management (UK) Ltd	3,026	3,026	3,026	1,426	1,426	1,426	1,426	1,426
Nomura Asset Management Co , Ltd	62,440	63,200	66,422	70,028	69,498	70,006	83,360	71,534
Nomura Asset Management Singapore Ltd	90	90	90	126	126	126	126	138
Nomura Securities Co , Ltd	0	0	0	4,040	17,973	6,585	7,381	139,081
Nordea Funds Oy	20,169	20,513	20,513	19,241	18,803	17,737	17,737	18,446
Nordea Investment Management AB (Denmark)	12,371	12,371	12,371	12,371	13,716	13,716	13,716	13,716
Norges Bank Investment Management (NBIM)	3,980,480	3,980,480	3,955,098	3,955,098	3,955,098	4,010,098	4,010,098	2,986,230
NORINCHUKIN BANK	43,300	49,195	69,527	71,251	52,978	54,347	49,780	31,466
Norinchukin Zenkyoren Asset Management Co , Ltd	0	0	0	0	0	0	272	272
North Point Portfolio Managers Corp	0	0	0	0	0	0	0	0
North Star Asset Management Inc	0	0	0	0	0	0	0	0
North Star Investment Management Corporation	200	200	200	200	0	200	200	200
NorthCoast Asset Management LLC	0	0	0	0	0	0	0	21,834
Northeast Financial Consultants Inc	4,783	5,623	12,661	12,661	12,661	12,661	0	0
Northern Capital Management, LLC	0	0	0	0	0	0	0	0
Northern Trust Fund Managers (Ireland) Limited	475	475	475	475	475	475	0	0
Northern Trust Global Investments	873,565	874,842	894,568	954,137	949,332	1,044,217	1,020,273	1,018,017
Northern Trust Global Investments Limited	583,012	538,705	601,454	608,819	611,117	653,894	627,378	610,387
Northern Trust Investments, Inc	3,362,707	3,262,474	3,356,821	3,292,994	2,968,450	2,827,448	2,805,257	2,751,412
Northside Capital Management, LLC	0	0	0	0	0	0	0	0
Northstar Asset Management LLC	0	0	0	0	0	0	0	0
Northstar Investment Advisors, LLC	0	0	0	0	0	0	0	0
Northwest Wealth Management, LLC	354	354	2,074	2,074	0	0	0	0
Northwestern Mutual Capital, LLC	6,302	6,403	5,918	6,604	5,964	6,135	6,360	29,085
Northwestern Mutual Investment Management Company LLC	73,181	66,932	57,314	57,045	14,260	14,317	14,607	19,601
Norway Savings Bank	16,130	16,760	10,644	16,054	16,904	14,960	13,285	12,860
NS Partners Ltd	0	0	0	0	0	0	0	0
Numeric Investors LLC	0	0	0	0	0	0	0	0
NumerixS Quant	22,003	1,800	86,407	2,721	10,000	0	0	76,558
Nuveen Asset Management, LLC	9,718	9,702	9,898	9,898	10,028	9,982	9,982	10,621
Nuveen LLC	2,154,566	1,969,274	1,867,344	1,547,397	1,440,903	1,456,849	1,429,646	1,777,175
NuWave Investment Management, LLC	22	12	8,418	16	512	4,754	566	19,927
NWQ Investment Management Company, LLC	0	0	0	0	0	0	0	0
Nykredit Bank AS	2,239	2,239	9,688	11,119	14,573	13,126	16,673	22,197
Nymbus Capital	4,300	4,600	4,600	7,000	7,000	3,800	0	0
OakBrook Investments, LLC NLE	0	0	0	0	0	0	0	0
Oakview Capital Management, L P	0	0	0	0	0	0	0	0
Oakworth Capital Bank	0	0	0	0	0	0	0	0
Oarsman Capital Inc	31,855	42,545	31,170	30,490	39,410	28,195	20,089	16,955
Oberbanscheidt & Cie Vermögensverwaltungsgesellschaft mbH	0	0	0	0	0	0	0	0
Occidental Asset Management, LLC	0	0	0	0	14,831	34,470	39,470	0
ODIN Forvalting AS	90,000	90,000	90,000	90,000	90,000	80,000	80,000	80,000
Ofi Asset Management	1,662	5,456	5,271	4,508	5,156	5,634	6,574	5,390
OFI SteelPath, Inc NLE	0	0	0	0	0	0	0	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018

Ogorek Wealth Management, LLC	0	0	0	0	0	0	0	0
Ohio National Investments, Inc	8,472	8,472	8,472	8,472	8,472	8,472	8,472	0
Ohio Public Employees Retirement System	260,323	260,323	261,057	261,057	170,197	165,754	166,031	165,129
Ohio Valley Financial Group	5,850	5,850	5,850	5,850	0	0	0	0
O'Keefe Stevens Advisory, Inc	0	0	0	0	0	42,137	43,505	42,906
Old Mutual Customised Solutions (Pty) Ltd	18,400	14,000	17,800	11,112	11,112	11,112	18,512	29,712
Old Second National Bank	0	0	0	0	0	0	0	0
OLMA-FINANCE Management Company, LLC	0	0	0	0	0	0	0	0
Omega Global Investors Pty Ltd NLE	0	0	0	0	971	651	781	781
Omnia Family Wealth, LLC	0	0	635	558	717	630	653	500
Ontario Teachers' Pension Plan Board	20,142	24,179	27,222	28,599	16,592	15,247	23,005	0
OP Varainhoito Oy	17,673	17,673	17,673	17,673	17,673	17,673	0	0
Operadora Valmex de Sociedades de Inversión S A de C V	17,000	17,000	17,000	17,000	17,000	25,000	25,000	25,000
Oppenheimer Asset Management Inc	30,141	51,375	49,629	123,200	127,488	118,661	117,634	117,084
OppenheimerFunds, Inc NLE	693,745	779,685	779,014	16,391	20,875	23,799	22,221	14,729
OPSEU Pension Plan Trust Fund (sibling)	0	0	0	0	0	0	0	0
Optimum Investment Advisors, LLC	0	0	0	0	0	0	0	400
OPTrust Private Markets Group	0	0	0	0	0	0	0	0
Orbis Investment Management Ltd	14,130,617	13,604,781	12,146,642	12,106,438	13,527,386	13,980,119	14,366,891	14,703,367
Oregon Public Employees Retirement System	114,650	38,883	39,558	39,758	39,758	40,576	40,576	41,133
Orion Portfolio Solutions, LLC	0	0	0	0	0	0	0	0
Orrstown Financial Services Inc	0	0	0	0	0	34	34	34
Osborn Williams & Donohoe LLC	0	0	0	0	0	0	0	0
O'Shaughnessy Asset Management, LLC	0	0	0	0	0	0	0	0
Osmosis Investment Management LLP	0	0	0	0	0	0	0	0
Ostrum Asset Management	78,087	77,538	103,524	125,418	139,540	123,735	127,765	142,270
Oxbow Advisors, LLC	8,520	8,520	37,536	44,721	0	0	0	0
OxFORD Asset Management	0	0	0	0	15,844	10,671	15,777	0
Pacer Advisors, Inc	7,327	7,283	7,749	8,002	8,669	9,573	11,853	14,229
Pacific Heights Asset Management, LLC	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000
Pacifica Partners Inc	0	0	0	0	0	425	425	0
Packer & Co , Ltd	0	0	0	0	0	973,998	545,200	545,200
Palisade Asset Management, LLC	64,207	63,907	60,977	60,977	60,821	61,091	54,154	53,954
Palisade Capital Management, LLC	9,428	9,428	6,185	6,185	6,185	5,616	0	0
Palladium Partners LLC	0	3,300	3,300	0	0	0	0	0
Palmer Square Capital Management LLC	3,296	0	0	0	0	0	0	0
Palo Capital, Inc	0	0	0	0	0	0	7,648	7,648
Paloma Partners Management Company	18,698	68,987	41,581	43,031	28,603	33,313	33,384	50,086
PanAgora Asset Management Inc	511,694	628,749	651,065	571,949	605,869	485,510	475,664	21,308
Paradigm Asset Management Company, L L C	0	0	71,700	59,320	81,720	60,520	47,420	44,620
Paragon Capital Management LLC	59,692	60,625	63,778	124,548	135,968	128,651	105,346	104,499
Paragon JV Partners, LLC	0	0	0	5,000	0	0	0	0
Parallax Volatility Advisers, L P	0	261	0	5,584	0	23,365	28,019	25,962
Parallel Advisors, LLC	0	0	2,185	2,346	1,781	1,107	1,166	1,308
Parametric Clifton	0	0	0	0	385	4,156	0	0
Parametric Portfolio Associates LLC	1,018,561	1,152,883	1,160,398	691,514	986,997	649,601	529,994	444,225
Park Avenue Institutional Advisers LLC	2,382	0	0	0	0	0	0	0
Park National Bank	5,593	4,827	4,349	5,249	0	0	0	0
Parkside Financial Bank & Trust	1,016	1,016	936	966	1,022	973	990	964
Parkside Investments, LLC	0	0	0	42,350	42,350	29,150	42,300	37,975
Parkwood LLC	0	4,305	6,867	6,867	0	0	0	5,480

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020

Ogorek Wealth Management, LLC	0	350	0	0	0	0	0	0
Ohio National Investments, Inc	0	0	0	0	0	0	0	0
Ohio Public Employees Retirement System	156,827	156,428	143,450	165,481	128,099	127,458	133,913	153,350
Ohio Valley Financial Group	0	2,525	2,525	4,300	4,000	0	0	0
O'Keefe Stevens Advisory, Inc	42,058	41,961	44,804	53,733	53,462	52,977	40,918	40,918
Old Mutual Customised Solutions (Pty) Ltd	27,612	27,612	27,612	27,612	27,612	27,612	27,612	27,612
Old Second National Bank	576	576	576	576	576	0	0	0
OLMA-FINANCE Management Company, LLC	0	0	0	49	0	0	0	0
Omega Global Investors Pty Ltd NLE	781	781	781	781	781	781	781	781
Omnia Family Wealth, LLC	500	500	611	611	0	0	0	0
Ontario Teachers' Pension Plan Board	0	0	0	28,615	0	0	0	0
OP Varainhoito Oy	0	0	0	0	0	24,314	24,314	24,314
Operadora Valmex de Sociedades de Inversión S A de C V	25,000	25,000	25,000	25,000	25,000	0	0	0
Oppenheimer Asset Management Inc	127,014	115,358	97,444	110,761	113,295	75,370	39,720	39,810
OppenheimerFunds, Inc NLE	13,252	14,056	34,147	20,487	0	0	0	0
OPSEU Pension Plan Trust Fund (sibling)	0	0	0	0	0	0	0	19,925
Optimum Investment Advisors, LLC	400	0	0	0	0	0	0	0
OPTrust Private Markets Group	0	0	0	0	0	0	0	19,925
Orbis Investment Management Ltd	14,729,503	15,873,142	13,674,274	14,493,363	13,114,954	13,120,910	15,912,946	15,912,946
Oregon Public Employees Retirement System	41,460	41,960	41,446	39,592	39,826	37,740	35,665	35,407
Orion Portfolio Solutions, LLC	0	0	0	0	0	0	283	789
Orrstown Financial Services Inc	34	0	0	0	0	330	0	0
Osborn Williams & Donohoe LLC	0	0	0	250	0	0	0	0
O'Shaughnessy Asset Management, LLC	0	0	0	0	1	0	159	0
Osmosis Investment Management LLP	0	0	4,338	4,338	4,338	2,082	4,405	0
Ostrum Asset Management	168,311	162,710	126,278	87,098	41,499	25,194	0	64,190
Oxbow Advisors, LLC	0	0	0	0	0	0	0	0
OxFORD Asset Management	0	0	0	214,756	0	0	0	0
Pacer Advisors, Inc	17,205	25,315	716	31,926	36,224	40,168	42,707	42,707
Pacific Heights Asset Management, LLC	200,000	150,000	150,000	150,000	150,000	150,000	150,000	179,000
Pacifica Partners Inc	0	0	0	0	0	0	700	700
Packer & Co , Ltd	545,200	545,200	545,200	0	631,000	631,000	413,500	0
Palisade Asset Management, LLC	53,954	53,694	53,694	53,694	53,494	45,149	37,370	37,498
Palisade Capital Management, LLC	0	0	0	0	0	0	0	0
Palladium Partners LLC	0	0	0	0	0	0	0	0
Palmer Square Capital Management LLC	0	0	0	0	0	0	0	0
Palo Capital, Inc	5,662	5,662	0	0	0	0	0	0
Paloma Partners Management Company	0	24,469	0	16,078	29,797	24,735	23,845	13,081
PanAgora Asset Management Inc	23,779	21,602	30,962	32,954	24,576	27,928	38,251	40,143
Paradigm Asset Management Company, L L C	44,620	19,320	20,020	18,970	0	0	0	0
Paragon Capital Management LLC	106,099	100,831	90,195	107,165	118,803	95,291	0	0
Paragon JV Partners, LLC	0	0	0	0	0	0	0	0
Parallax Volatility Advisers, L P	0	212	71,929	18,487	102,492	97,866	23,460	118,803
Parallel Advisors, LLC	1,357	1,257	400	588	968	1,773	1,449	796
Parametric Clifton	0	0	0	0	0	29,815	0	43,954
Parametric Portfolio Associates LLC	563,054	662,242	715,919	876,657	1,054,895	1,269,185	1,297,194	1,355,528
Park Avenue Institutional Advisers LLC	0	0	0	0	0	0	0	0
Park National Bank	0	21,420	42,841	46,877	53,506	63,122	37,796	10,571
Parkside Financial Bank & Trust	980	994	1,119	1,190	1,416	1,386	1,411	1,163
Parkside Investments, LLC	40,350	40,250	9,995	17,455	0	0	0	0
Parkwood LLC	0	0	0	0	0	0	0	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018

Parsec Financial Management, Inc	4,486	4,276	4,276	4,276	4,276	0	0	0
Parsons Capital Management, Inc	19,696	19,296	17,982	17,840	17,302	17,302	16,694	15,429
Partnervest Advisory Services LLC NLE	0	0	0	0	0	0	0	276
Pathlight Investors, LLC NLE	0	0	0	0	0	0	0	0
Pathstone	240	0	0	0	0	0	0	0
Patten & Patten, Inc	6,895	6,645	5,715	5,715	5,715	5,715	5,405	5,205
Patten Group, Inc	15,548	15,548	0	0	0	0	0	0
PDT Partners, LLC	0	0	0	0	0	0	0	0
Peak 6 Capital Management, LLC	65,785	64,607	190,347	110,289	138,032	190,445	166,209	201,609
Pearl River Capital, LLC	0	0	0	0	0	0	0	0
Peconic Partners, LLC	0	699,200	1,099,200	1,119,200	0	0	0	0
Pegasus Partners Ltd	0	0	0	0	81,709	95,421	47,670	93,695
Pekin Hardy Strauss Wealth Management	0	0	0	0	0	0	7,922	8,907
Penn Davis McFarland, Inc	21,026	20,426	19,908	18,968	18,378	0	0	0
Pennant Capital Management, LLC NLE	0	0	0	0	84,101	100,000	0	0
Pennsylvania Public School Employees Retirement System	38,188	29,650	29,559	33,200	33,385	34,438	39,131	35,665
Penserra Capital Management LLC	0	0	0	0	0	0	0	2,190
Pensions Services Limited	26,566	26,566	26,566	24,571	24,571	19,684	19,684	19,684
Pentalpha Capital Ltd	0	0	0	0	0	0	0	0
People's Securities, Inc	250	0	0	0	0	0	0	0
People's United Bank	0	0	3,736	0	0	0	0	0
Perigon Wealth Management, LLC	0	0	0	0	0	0	0	0
Perkins Coie Trust Company LLC	144	144	144	0	0	0	0	0
Perot Investments	0	0	0	0	0	0	8,648	7,067
Perritt Capital Management, Inc	0	0	0	0	0	0	0	0
Pflug Koory, L L C	0	0	489	489	489	289	375	375
PGGM Vermogensbeheer B V	0	0	206,857	206,857	206,857	206,857	163,692	163,692
PGIM Fixed Income	761	761	861	861	861	861	781	781
PGIM Investments LLC	0	0	6,138	6,138	6,138	6,138	0	0
PGIM Japan Co., Ltd	500	500	0	0	0	0	400	400
PGIM Quantitative Solutions LLC	524,342	526,301	525,741	531,141	518,821	521,031	524,281	420,464
PGIM Securities Investment Trust Enterprise	10,050	5,800	12,700	14,300	7,150	15,000	15,000	7,600
Pharus Management S A	0	0	0	0	0	0	0	19,000
Phocas Financial Corporation	0	70,844	69,203	6,757	0	0	0	0
Pictet Asset Management Ltd	196,729	199,229	197,629	211,529	210,229	204,229	217,523	213,623
Piedmont Investment Advisors, Inc	86,059	77,998	79,715	80,409	0	0	0	0
PIMCO (US)	49,354	0	0	111,786	172,378	251,544	347,182	870
PIMCO Europe Ltd	0	0	0	0	0	0	0	0
Pin Oak Investment Advisors, Inc	0	0	0	0	0	0	33,685	33,235
PineBridge Investments Japan Co., Ltd	6,100	6,100	6,100	6,100	4,400	4,400	6,000	6,000
PineBridge Investments LLC	3,163	6,131	6,703	1,052	990	1,266	3,495	73,658
Pinkerton Retirement Specialists LLC	17	17	9	0	0	0	0	0
Pinnacle Associates Ltd	9,700	9,132	9,082	8,346	5,629	4,785	0	5,308
Pinnacle Bank	0	0	0	1,940	1,940	1,940	1,940	1,940
Pinnacle Financial Partners, Inc	325	6,358	0	0	0	0	6,358	6,033
Pioneer Investments Austria GmbH NLE	11,000	11,000	5,000	5,000	5,000	5,000	5,000	5,000
Pittenger & Anderson, Inc	12,734	12,734	16,843	16,843	15,843	16,093	16,293	16,043
Plante Moran Financial Advisors, LLC	196	128	128	128	128	128	128	128
PNC Capital Advisors, LLC	6,214	5,661	5,651	5,438	5,440	7,064	5,494	4,847
PNC Wealth Management	78,189	73,975	67,085	89,980	99,849	92,189	85,320	84,905
Poehling Capital Management, Inc	0	0	0	0	0	0	450	100

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020
Parsec Financial Management, Inc	0	0	0	0	0	0	0	25,003
Parsons Capital Management, Inc	14,916	13,833	11,778	9,023	8,540	0	0	0
Partnervest Advisory Services LLC NLE	0	0	0	0	0	0	0	0
Pathlight Investors, LLC NLE	0	0	6,531	6,531	6,531	6,531	0	0
Pathstone	0	0	0	0	0	220	0	0
Patten & Patten, Inc	0	0	0	0	0	0	0	0
Patten Group, Inc	0	0	0	0	0	0	0	0
PDT Partners, LLC	0	0	0	0	0	0	0	183,400
Peak 6 Capital Management, LLC	0	78,947	132,831	91,733	26,755	92,597	21,015	0
Pearl River Capital, LLC	0	0	6	202	0	0	0	0
Peconic Partners, LLC	0	0	0	0	0	0	0	0
Pegasus Partners Ltd	117,200	90,393	31,929	54,382	35,413	0	0	0
Pekin Hardy Strauss Wealth Management	8,907	9,172	8,499	8,049	7,899	0	0	0
Penn Davis McFarland, Inc	0	0	0	0	0	0	0	0
Pennant Capital Management, LLC NLE	0	0	0	0	0	0	0	0
Pennsylvania Public School Employees Retirement System	40,004	31,387	20,706	21,947	30,308	33,282	35,044	24,024
Penserra Capital Management LLC	1,940	2,884	9,123	8,027	4,401	4,288	55,488	51,798
Pensions Services Limited	8,721	8,721	5,840	0	0	0	0	0
Pentalpha Capital Ltd	0	0	0	0	0	0	77,000	0
People's Securities, Inc	0	0	0	0	0	0	0	0
People's United Bank	0	0	0	0	0	0	0	0
Perigon Wealth Management, LLC	0	7,605	0	6,655	8,845	0	0	0
Perkins Coie Trust Company LLC	0	0	0	0	0	0	0	17
Perot Investments	0	0	0	0	0	0	0	0
Perritt Capital Management, Inc	0	0	0	8,725	8,725	8,725	8,725	0
Pflug Koory, L L C	275	275	275	275	225	0	0	0
PGGM Vermogensbeheer B V	163,692	163,692	87,629	87,629	87,629	87,629	7,678	7,678
PGIM Fixed Income	751	751	180	377	751	319	109	12
PGIM Investments LLC	0	0	0	0	0	0	0	0
PGIM Japan Co., Ltd	400	400	400	400	400	400	0	0
PGIM Quantitative Solutions LLC	416,364	411,964	413,873	403,396	401,867	493,617	354,348	344,074
PGIM Securities Investment Trust Enterprise	7,600	14,600	0	0	0	0	0	0
Pharus Management S A	19,000	19,000	19,000	0	0	0	0	0
Phocas Financial Corporation	0	0	0	0	0	0	0	0
Pictet Asset Management Ltd	212,323	200,223	225,723	182,023	185,923	189,023	178,923	190,423
Piedmont Investment Advisors, Inc	4,469	5,710	0	7,717	0	0	0	0
PIMCO (US)	870	0	0	591	25,800	0	0	0
PIMCO Europe Ltd	0	0	0	0	0	0	0	563
Pin Oak Investment Advisors, Inc	32,575	29,410	5,545	5,170	4,420	4,135	2,785	2,785
PineBridge Investments Japan Co., Ltd	8,000	8,000	8,000	8,000	11,100	11,100	0	0
PineBridge Investments LLC	53,364	1,036	1,121	7,563	1,056	0	34,020	26,480
Pinkerton Retirement Specialists LLC	0	0	0	0	0	0	0	0
Pinnacle Associates Ltd	0	0	0	0	0	0	0	0
Pinnacle Bank	1,940	1,940	1,800	1,800	1,700	1,700	1,600	2,100
Pinnacle Financial Partners, Inc	0	6,033	0	0	0	0	0	0
Pioneer Investments Austria GmbH NLE	0	0	0	0	0	0	0	0
Pittenger & Anderson, Inc	15,543	15,543	15,543	15,543	9,985	9,985	9,985	9,985
Plante Moran Financial Advisors, LLC	0	0	0	0	0	0	0	0
PNC Capital Advisors, LLC	2,230	1,087	1,134	1,082	1,024	864	200	200
PNC Wealth Management	91,341	94,535	75,122	84,868	52,511	59,536	52,890	42,480
Poehling Capital Management, Inc	0	0	0	0	0	0	0	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018

Point View Wealth Management, Inc NLE	7,487	7,401	7,396	8,287	8,289	7,970	7,048	9,504
Point72 Asset Management, L P	120,000	0	0	944,109	0	2,043,588	870,660	625,000
Point72 Hong Kong Limited	2,100	500	0	489	0	0	54	0
Popular Asset Management, Inc	840	0	0	0	0	0	0	0
PPM America, Inc	2,066,900	1,908,200	2,360,200	3,047,700	3,349,800	3,603,600	3,799,390	3,997,700
Pramerica SGR S p A NLE	0	0	6,138	6,138	6,138	6,138	6,138	6,138
Pratt Collard Buck Advisory Group	0	0	0	0	0	0	0	0
Prelude Capital Management, LLC	0	0	0	0	0	0	0	0
Prentiss Smith & Company, Inc	37	37	37	37	37	37	87	87
Prescott Group Capital Management, LLC	0	21,041	0	0	0	0	0	0
Price Capital Management, Inc	0	0	0	0	0	0	0	0
Price Wealth, LLC NLE	0	0	0	0	0	0	0	0
Prime Capital Investment Advisors LLC	0	0	0	0	0	0	1,000	1,000
Princeton Capital Management LLC	0	16,378	15,281	15,281	15,281	15,281	0	0
Principal Funds, Inc	26,375	25,378	23,210	22,817	2,455	13,242	22,929	31,924
Principal Global Investors (Equity)	536,551	547,737	544,399	553,405	580,257	575,003	596,799	589,416
Principal Management Corporation	2,696	15,797	2,538	2,538	19,504	27,569	32,869	28,959
Principal Vermögensverwaltung AG	0	0	0	0	0	0	0	1,000
Prio Wealth Limited Partnership	9,934	8,934	8,934	8,934	8,134	7,734	0	0
Private Advisor Group LLC	6,261	3,329	9,984	13,262	10,424	12,078	10,908	0
Private Capital Advisors, Inc	49,805	49,805	49,755	46,725	44,870	0	0	0
Private Capital Group, LLC	0	0	0	0	0	0	26	532
Private Ocean, LLC	0	0	0	0	0	0	267	268
Private Wealth Advisors, Inc	4,834	4,856	4,732	4,334	0	0	0	0
Procyon Private Wealth Partners, LLC	0	0	0	0	0	0	0	0
ProEquities Inc	0	0	0	0	0	0	0	0
Proffitt Goodson Investment Management	0	0	0	0	0	0	14,711	14,021
Proficio Capital Partners LLC	6	6	45	259	59	178	45	193
Pro-Financial Asset Management, Inc	200	200	200	200	200	200	200	200
ProFund Advisors LLC	29,299	22,737	24,671	22,175	21,271	20,407	20,412	17,626
ProShare Advisors LLC	66,745	53,494	64,229	63,393	62,983	127,727	145,068	153,573
Proxy P Management AB	0	0	12,040	7,940	3,040	1,140	0	0
PRW Wealth Management LLC	0	0	0	0	0	0	0	0
PSI Advisors, L L C	0	0	0	0	0	0	0	0
PSP Investments	71,756	85,156	83,356	86,156	42,956	41,877	19,977	21,277
PT Asset Management, LLC	0	0	0	4,500	0	0	0	0
Public Employees' Retirement Association of CO	234,595	283,779	282,047	279,995	73,545	69,848	72,276	68,254
Purpose Investments Inc	0	0	0	0	0	0	0	0
Putnam Investment Management, L L C	423,036	135,654	96,334	96,034	80,900	71,310	70,110	10,041
Putnam Investments Limited	0	0	88,340	88,340	73,650	64,360	64,360	4,960
Pzena Investment Management, LLC	932,140	17,450	0	0	0	2,965	2,965	2,965
QCI Asset Management Inc	2,635	1,135	1,125	1,125	1,120	825	825	825
QS Investors, LLC	163,540	186,401	265,056	210,363	187,017	52,805	45,373	45,373
Quadrant Family Wealth Advisors	1,305	1,631	1,622	1,668	1,608	1,597	1,378	1,847
Quadrature Capital LLP	0	17,493	0	0	0	0	138,817	0
Quaestio Capital Management SGR S p A	0	0	0	0	0	0	0	0
Quantamental Technologies LLC	0	0	0	0	0	0	0	0
Quantbot Technologies, LP	3,384	0	34,944	0	0	0	58,203	0
Quantinno Capital Management LP	0	0	0	0	0	0	0	0
Quantitative Investment Management LLC	47,500	34,700	34,100	0	0	0	0	0
Quantlab Capital Management, LLC	0	0	0	0	0	0	7,313	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020

Point View Wealth Management, Inc NLE	9,705	9,596	11,018	0	0	0	0	0
Point72 Asset Management, L P	315,000	500,000	1,020,000	0	0	0	0	358,394
Point72 Hong Kong Limited	0	0	0	5,016	4,661	0	17,804	0
Popular Asset Management, Inc	0	0	0	0	0	0	0	0
PPM America, Inc	3,301,100	2,692,300	3,143,200	3,166,500	3,058,800	2,803,600	3,097,900	820,750
Pramerica SGR S p A NLE	6,138	6,138	0	0	46,723	46,723	61,532	61,532
Pratt Collard Buck Advisory Group	15,500	16,600	0	6,000	7,200	9,300	23,400	25,250
Prelude Capital Management, LLC	0	0	1,050	0	0	0	0	147
Prentiss Smith & Company, Inc	87	0	0	0	0	0	0	0
Prescott Group Capital Management, LLC	0	0	0	0	0	0	0	0
Price Capital Management, Inc	16,714	0	0	0	0	0	0	0
Price Wealth, LLC NLE	47	0	0	0	0	0	65	65
Prime Capital Investment Advisors LLC	80	1,220	0	0	0	0	0	0
Princeton Capital Management LLC	0	0	0	0	0	0	0	0
Principal Funds, Inc	15,352	15,464	13,868	13,740	43,655	24,919	16,960	26,898
Principal Global Investors (Equity)	576,451	584,120	571,780	563,030	553,140	553,984	527,821	546,165
Principal Management Corporation	20,561	19,282	18,351	8,026	8,770	8,004	0	9,790
Principal Vermögensverwaltung AG	0	0	0	0	0	0	0	0
Prio Wealth Limited Partnership	0	0	0	0	0	0	0	0
Private Advisor Group LLC	17,199	17,666	0	13,556	7,775	0	0	0
Private Capital Advisors, Inc	0	0	0	0	0	0	0	0
Private Capital Group, LLC	782	532	0	0	782	0	0	0
Private Ocean, LLC	270	0	0	0	0	0	0	0
Private Wealth Advisors, Inc	0	0	0	0	0	0	0	0
Procyon Private Wealth Partners, LLC	0	0	0	0	0	0	8	8
ProEquities Inc	0	5,177	5,049	5,474	0	0	0	2,910
Proffitt Goodson Investment Management	0	0	0	0	0	0	0	0
Proficio Capital Partners LLC	221	221	207	268	100	0	0	0
Pro-Financial Asset Management, Inc	0	0	0	0	0	0	0	0
ProFund Advisors LLC	18,301	17,935	15,122	14,892	15,276	15,054	15,342	13,553
ProShare Advisors LLC	79,777	63,575	152,939	133,462	63,487	66,641	76,276	58,117
Proxy P Management AB	11,100	11,100	11,100	11,100	11,100	11,100	11,100	11,100
PRW Wealth Management LLC	0	0	10	10	0	0	0	0
PSI Advisors, L L C	0	0	0	0	0	0	1,000	0
PSP Investments	21,277	17,877	19,677	31,377	49,077	72,752	64,962	37,572
PT Asset Management, LLC	0	0	0	0	0	0	0	0
Public Employees' Retirement Association of CO	67,990	67,918	67,757	70,944	70,414	53,386	53,386	57,097
Purpose Investments Inc	7,200	0	0	0	0	0	0	0
Putnam Investment Management, L L C	5,395	4,947	0	0	0	0	29,967	54,725
Putnam Investments Limited	0	0	0	0	0	0	0	0
Pzena Investment Management, LLC	0	0	0	0	0	0	0	3,150
QCI Asset Management Inc	500	500	0	0	0	0	0	0
QS Investors, LLC	42,736	46,136	50,136	50,287	53,887	49,887	56,545	61,688
Quadrant Family Wealth Advisors	1,500	1,500	1,238	3,329	2,619	7,139	3,455	4,372
Quadrature Capital LLP	0	0	0	0	7,893	367,901	0	0
Quaestio Capital Management SGR S p A	0	0	0	0	0	0	8	8
Quantamental Technologies LLC	0	0	6,548	0	8,244	0	0	0
Quantbot Technologies, LP	0	0	21,544	0	0	0	72,112	0
Quantinno Capital Management LP	0	0	0	6,342	0	0	12,365	0
Quantitative Investment Management LLC	113,200	36,500	196,200	0	0	0	124,363	353,155
Quantlab Capital Management, LLC	0	0	0	0	0	0	0	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018

QUANTRES ASSET MANAGEMENT Ltd	0	0	0	15,400	0	8,900	25,200	0
Quantum Capital Management LLC	5,770	5,688	5,315	4,494	4,171	4,424	0	6,093
Qube Research & Technologies Ltd	0	0	0	0	0	0	0	0
Queens Oak Advisors	0	0	0	0	0	0	65,191	76,111
Quenti Asset Management A/S	5,201	4,161	4,161	3,360	3,360	3,360	3,360	0
Quilter Investors Limited	10,300	10,300	0	0	0	0	0	0
QV Investors Inc	338,487	341,900	342,784	340,901	336,081	317,494	312,944	691,034
R H Bluestein & Company	0	423,532	559,316	600,925	0	0	0	0
R M Davis, Inc	14,772	11,342	10,762	9,990	5,992	5,767	5,267	0
Rafferty Asset Management LLC	0	0	11,044	0	0	0	0	19,124
Raiffeisen Kapitalanlage-Gesellschaft mbH	21,000	21,200	19,200	19,300	19,400	20,500	20,800	20,200
Rampart Investment Management Company, LLC	0	14,933	14,885	1,072	4,342	4,822	0	4,119
Ramsay, Stattman, Vela & Price, Inc	4,704	4,704	4,704	4,704	4,704	4,704	0	0
Ranch Capital Advisors	0	0	0	0	0	0	0	0
Rand & Associates, LLC NLE	5,690	5,940	6,940	4,930	5,495	4,650	0	0
Ranger Investment Management, L P	0	0	0	540	540	540	540	540
Rathbone Investment Management Ltd	5,050	9,550	12,700	12,700	17,200	17,200	26,100	26,100
Rational Advisors, Inc	0	0	0	0	0	0	0	0
Raymond James & Associates, Inc	54,011	69,195	113,796	82,818	90,148	82,048	69,595	62,488
Raymond James Financial Services Advisors, Inc	39,857	41,631	59,958	61,816	62,977	63,607	58,629	58,176
Rayner & Haynor NLE	2,900	0	0	0	0	0	0	0
RBC Capital Markets (Canada)	1,952	0	0	0	0	0	0	0
RBC Capital Markets Wealth Management	236,707	226,236	289,853	303,535	482,912	316,509	600,840	398,698
RBC Capital Partners	0	0	9,749	7,809	0	0	8,246	6,638
RBC Dominion Securities, Inc	35,064	31,891	79,222	108,771	122,868	39,778	36,546	25,430
RBC Global Asset Management (UK) Limited	0	0	0	0	3,100	0	0	0
RBC Global Asset Management Inc	10,814	440,947	581,108	962,819	1,350,979	131,837	65,081	65,366
RBC Phillips, Hager & North Investment Counsel Inc	3,405	3,430	8,677	16,980	23,116	2,281	1,305	1,269
RBC Private Counsel (USA) Inc	50	35	970	1,783	2,418	104	865	300
RBC Wealth Management, International	21,754	18,307	24,628	33,819	20,538	25,142	24,172	15,638
ReAssure Limited	0	0	0	0	27,063	26,853	41,809	42,239
Red Door Wealth Management, LLC	0	0	0	0	0	0	0	0
Redmond Asset Management, LLC	0	3,600	7,600	8,800	0	0	0	0
Redpoint Investment Management Pty Ltd	0	0	0	0	0	0	7,364	7,364
Redwood Asset Management Inc NLE	6,000	10,000	8,200	8,200	7,400	7,400	7,400	0
RegentAtlantic Capital, L L C	22,420	22,134	22,440	22,523	20,321	20,171	19,966	19,937
Regions Investment Management, Inc	10,882	10,308	11,307	10,957	10,157	6,133	5,532	5,278
Rehmann Financial, LLC	0	0	0	0	0	0	0	961
Reichmuth & Co	0	0	0	0	0	0	0	0
Reilly Financial Advisors, LLC	692	692	692	874	874	874	874	874
Reinhart Partners, Inc	449,645	447,795	534,950	656,460	599,056	556,111	563,596	573,183
Reliance Trust Company of Delaware	9,273	0	4,047	9,764	9,745	8,370	8,567	8,161
Reliant Investment Management, LLC	0	0	46,100	46,775	46,596	45,146	0	0
Renaissance Investment Group, LLC	22,479	23,239	24,014	24,154	23,780	23,015	13,636	0
Renaissance Technologies LLC	0	0	0	0	0	0	0	0
Renta 4 Gestora, S G I I C , S A	7,790	7,790	7,790	7,790	7,790	7,790	7,790	7,790
Requisite Capital Management LLC	0	0	0	0	0	0	0	0
Research Affiliates, LLC	15,142	24,616	30,407	32,906	24,963	12,828	1,553	648
Resona Asset Management Co , Ltd	0	0	0	0	0	0	550	550
Resona Bank, Ltd	0	0	0	159	159	159	159	519
Resonant Capital Advisors, LLC	0	0	0	0	0	0	0	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020

QUANTRES ASSET MANAGEMENT Ltd	0	0	31,700	0	0	0	0	0
Quantum Capital Management LLC	6,093	6,151	0	0	0	0	0	0
Qube Research & Technologies Ltd	0	7,211	30,208	17,605	0	0	64,556	359,442
Queens Oak Advisors	81,264	87,463	91,781	99,231	118,543	108,764	145,759	192,928
Quenti Asset Management A/S	0	0	0	0	0	0	0	0
Quilter Investors Limited	0	0	0	0	0	125,578	125,578	125,578
QV Investors Inc	796,714	796,714	640,554	637,420	413,046	392,965	277,520	163,430
R H Bluestein & Company	0	0	0	0	0	0	0	0
R M Davis, Inc	0	0	0	0	0	0	0	0
Rafferty Asset Management LLC	55,767	18,934	0	73,150	201,671	229,739	215,266	73,339
Raiffeisen Kapitalanlage-Gesellschaft mbH	19,700	19,700	19,700	19,700	19,700	20,099	19,700	0
Rampart Investment Management Company, LLC	25,709	3,181	3,743	3,417	3,223	2,874	6,660	3,175
Ramsay, Stattman, Vela & Price, Inc	4,704	4,704	0	0	0	0	0	0
Ranch Capital Advisors	0	0	0	0	0	0	400	400
Rand & Associates, LLC NLE	0	4,387	4,387	4,387	4,387	4,387	4,387	4,387
Ranger Investment Management, L P	540	0	0	0	0	0	0	0
Rathbone Investment Management Ltd	26,100	26,100	29,300	27,900	27,900	27,955	27,955	27,955
Rational Advisors, Inc	22	12	1,557	16	512	3,404	566	0
Raymond James & Associates, Inc	70,059	79,680	70,852	60,135	50,108	47,628	38,567	50,368
Raymond James Financial Services Advisors, Inc	61,155	58,452	38,465	35,296	34,748	32,475	33,979	49,090
Rayner & Haynor NLE	0	0	0	0	0	0	0	0
RBC Capital Markets (Canada)	0	0	0	0	0	0	0	0
RBC Capital Markets Wealth Management	424,290	386,020	388,924	491,514	440,951	426,115	356,921	414,960
RBC Capital Partners	2,219	4,656	5,479	0	0	5,517	6,255	0
RBC Dominion Securities, Inc	22,818	53,452	22,519	23,455	24,717	2,598	2,662	2,571
RBC Global Asset Management (UK) Limited	0	0	0	0	0	0	0	0
RBC Global Asset Management Inc	12,520	12,520	4,520	9,320	4,520	0	0	0
RBC Phillips, Hager & North Investment Counsel Inc	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250
RBC Private Counsel (USA) Inc	300	620	130	304	304	130	130	130
RBC Wealth Management, International	19,331	17,179	31,686	19,188	24,721	478	76	32,951
ReAssure Limited	43,264	53,102	47,823	10	10	10	672	660
Red Door Wealth Management, LLC	0	0	0	0	0	0	0	1,691
Redmond Asset Management, LLC	0	0	0	0	0	0	0	0
Redpoint Investment Management Pty Ltd	7,364	7,364	0	7,364	7,364	0	0	0
Redwood Asset Management Inc NLE	7,200	0	0	0	0	0	0	0
RegentAtlantic Capital, L L C	21,231	21,259	20,014	20,086	21,187	20,799	20,799	20,899
Regions Investment Management, Inc	4,829	3,517	3,519	1,670	0	0	0	0
Rehmann Financial, LLC	470	470	292	297	297	292	292	0
Reichmuth & Co	0	9,750	9,750	9,750	9,750	0	0	0
Reilly Financial Advisors, LLC	874	874	874	874	874	874	182	182
Reinhart Partners, Inc	704,545	557,938	565,230	593,748	604,220	0	0	0
Reliance Trust Company of Delaware	8,101	8,006	0	0	0	0	0	0
Reliant Investment Management, LLC	0	0	0	0	0	0	0	0
Renaissance Investment Group, LLC	0	0	0	0	0	0	0	0
Renaissance Technologies LLC	0	0	0	0	0	0	1,014,154	3,188,626
Renta 4 Gestora, S G I I C , S A	0	0	0	0	0	0	0	0
Requisite Capital Management LLC	0	0	36,447	36,447	36,447	36,447	24,000	14,000
Research Affiliates, LLC	4,998	12,290	19,279	30,671	24,843	21,690	12,205	795
Resona Asset Management Co , Ltd	550	550	550	550	550	550	0	422
Resona Bank, Ltd	519	519	519	421	421	421	421	421
Resonant Capital Advisors, LLC	0	0	0	0	0	0	46,456	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018

Resources Investment Advisors, LLC	0	0	0	0	185	269	279	279
Reynders, McVeigh Capital Management, LLC	5,552	5,934	5,252	5,252	5,152	4,845	0	0
Reynolds Capital Management, LLC	1,300	0	0	0	0	0	0	1,000
Rhumblin Advisers Ltd Partnership	579,986	600,020	627,703	637,047	653,924	660,615	667,594	670,182
Riggs Asset Management Company Inc	0	0	0	0	0	0	0	0
Ringturm Kapitalanlagegesellschaft mbH NLE	3,000	0	0	0	0	0	0	0
River and Mercantile Asset Management LLP	55,068	61,209	61,209	79,709	115,009	126,159	172,679	179,316
River Wealth Advisors LLC	8,302	8,652	8,916	9,076	8,576	8,146	6,926	6,451
Riverfront Investment Group, LLC	0	0	0	0	5,883	7,554	0	0
Riverhead Capital Management LLC	20,200	10,000	7,800	10,403	11,400	46,172	65,909	27,659
RiverPark Advisors, LLC	5,970	5,970	5,970	0	0	0	0	0
Robeco Institutional Asset Management B V	69,298	26,211	13,940	17,906	11,361	15,948	13,809	34,832
Rockefeller Capital Management	272,541	244,714	241,475	1,900	1,913	1,882	1,931	172
Rometsch & Moor Limited	0	0	2,700	0	0	0	0	0
Ropes & Gray LLP	1,930	1,930	0	0	0	0	0	0
Ropes Wealth Advisors LLC	341	0	0	300	73	73	0	0
Rothschild & Co Asset Management Europe SCS	12,000	12,000	12,000	12,000	12,000	0	0	0
Rothschild & Co Asset Management US INC	0	0	0	0	0	0	0	0
Rothschild & Co Bank AG	0	0	0	0	0	0	0	0
Rothschild Investment Corporation	16,314	12,814	8,434	11,481	9,881	9,881	6,736	7,416
Rowland Carmichael Advisors Inc	4,730	4,730	4,730	4,730	4,730	4,730	4,730	8,340
Royal Alliance Associates, Inc	594	0	0	0	0	0	0	0
Royal Bank of Canada Trust Co (Bahamas) Ltd	6,500	6,500	6,500	6,500	6,500	6,500	6,500	6,500
Royal Fund Management, LLC	0	0	72	0	0	0	0	0
Royal London Asset Management Ltd	127,096	127,096	127,096	127,096	127,096	127,096	127,096	119,478
Royal Trust Corporation of Canada	0	50	130	255	705	0	0	0
Ruffer LLP	0	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Ruggie Wealth Management	0	0	0	406	406	406	406	406
Russell Investments Limited	0	0	0	0	0	0	0	0
Russell Investments Trust Company	719,680	351,716	333,377	336,223	360,932	321,358	306,346	19,748
S B Carr Investments, Inc	0	0	0	0	0	0	0	0
Sabadell Asset Management, S A , S G I I C , Sociedad Unipersonal	0	0	0	0	0	0	1,256	0
Sabal Trust Company	3,626	3,626	3,626	0	0	0	0	0
SailingStone Capital Partners LLC	8,858	8,025	9,957	9,957	8,662	8,662	8,662	8,662
Salem Investment Counselors, Inc	6,700	6,700	8,242	8,000	8,019	8,150	7,450	6,400
Salient Capital Advisor LLC	56,800	56,800	56,800	56,800	57,268	0	0	0
Samsung Asset Management Co , Ltd	370	2,000	2,000	3,014	1,806	2,188	4,877	7,379
San Francisco Sentry Investment Group	5,207	4,941	4,811	4,128	3,717	1,351	1,526	1,752
Sanborn Kilcollin Partners, LLC NLE	127,307	0	0	0	0	0	0	0
Sandy Spring Bank	31,597	31,917	32,550	32,356	34,321	30,960	19,879	11,760
Sanlam Investment Management (Pty) Ltd	6,510	6,510	6,510	6,374	9,110	8,974	8,974	8,974
Sanlam Investments UK Limited	2,550	0	0	0	0	0	0	35,800
Santander Asset Management - S G F I M , S A	1,055	0	0	0	0	0	0	0
Santander Asset Management UK Limited	1,025	1,025	1,025	0	0	0	0	0
Santander Private Banking Gestion, S A , S G I I C	5,540	5,540	5,540	5,540	5,540	5,540	5,540	5,540
Santori & Peters	0	0	0	0	0	0	45	0
Sarbit Advisory Services Inc	0	0	0	0	0	0	0	0
Sberbank Asset Management	0	0	0	0	0	0	0	0
Schafer Cullen Capital Management, Inc	3,700	3,700	3,700	0	0	0	0	0
Schaper, Benz & Wise Investment Counsel, Inc	22,550	21,450	16,445	23,425	27,375	27,625	26,925	28,725
Schmid & Partenaires Management Services S A	2,000	2,000	2,000	0	0	0	0	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020

Resources Investment Advisors, LLC	249	249	179	90	90	0	0	0
Reynders, McVeigh Capital Management, LLC	0	0	0	0	0	0	0	0
Reynolds Capital Management, LLC	2,400	700	0	0	0	1,600	0	0
Rhumblin Advisers Ltd Partnership	720,413	709,931	726,491	666,094	653,722	645,398	665,792	732,500
Riggs Asset Management Company Inc	0	160	160	160	160	160	160	160
Ringturm Kapitalanlagegesellschaft mbH NLE	0	0	0	0	0	0	0	0
River and Mercantile Asset Management LLP	205,143	212,395	236,885	235,285	0	0	0	0
River Wealth Advisors LLC	3,833	2,288	1,179	0	0	0	0	0
Riverfront Investment Group, LLC	0	0	0	0	0	0	0	0
Riverhead Capital Management LLC	15,766	26,698	39,350	28,600	18,850	23,400	23,400	23,400
RiverPark Advisors, LLC	0	0	0	0	0	0	0	0
Robeco Institutional Asset Management B V	34,766	41,430	70,799	290,865	71,722	23,656	19,354	47,557
Rockefeller Capital Management	172	172	172	787	414	426	184	228
Rometsch & Moor Limited	0	0	0	0	0	0	0	0
Ropes & Gray LLP	0	0	0	0	0	0	0	0
Ropes Wealth Advisors LLC	0	100	0	0	0	0	0	0
Rothschild & Co Asset Management Europe SCS	0	0	0	0	0	0	0	0
Rothschild & Co Asset Management US INC	0	0	12,408	12,408	12,408	12,408	12,408	12,408
Rothschild & Co Bank AG	0	0	0	0	0	0	12,000	12,000
Rothschild Investment Corporation	10,496	10,646	7,824	7,204	37,599	44,339	34,441	11,881
Rowland Carmichael Advisors Inc	8,340	4,610	0	0	0	0	0	0
Royal Alliance Associates, Inc	0	0	0	0	0	0	0	0
Royal Bank of Canada Trust Co (Bahamas) Ltd	6,500	0	0	0	0	0	0	0
Royal Fund Management, LLC	0	0	0	0	0	0	0	0
Royal London Asset Management Ltd	164,861	0	160,730	160,730	0	153,190	153,190	151,756
Royal Trust Corporation of Canada	0	0	0	0	0	0	0	0
Ruffer LLP	20,000	20,000	20,000	0	0	0	0	0
Ruggie Wealth Management	406	0	0	0	0	0	0	0
Russell Investments Limited	0	0	0	5,474	5,474	5,474	0	0
Russell Investments Trust Company	4,168	4,168	4,270	45,457	28,957	28,957	14,300	9,205
S B Carr Investments, Inc	0	0	0	0	246	246	0	0
Sabadell Asset Management, S A , S G I I C , Sociedad Unipersonal	0	0	2,910	0	0	0	0	0
Sabal Trust Company	0	0	0	0	0	0	0	0
SailingStone Capital Partners LLC	8,662	8,662	8,662	8,662	0	0	0	0
Salem Investment Counselors, Inc	5,000	5,000	0	0	1,350	1,250	1,150	1,150
Salient Capital Advisor LLC	0	0	0	0	0	0	32,573	14,871
Samsung Asset Management Co , Ltd	10,529	11,117	13,011	13,086	12,069	12,942	12,892	9,922
San Francisco Sentry Investment Group	125	32	60	93	93	63	0	316
Sanborn Kilcollin Partners, LLC NLE	0	0	0	0	0	0	0	0
Sandy Spring Bank	11,674	10,642	7,388	6,574	5,729	4,191	3,338	246
Sanlam Investment Management (Pty) Ltd	8,974	8,974	8,974	15,698	17,578	17,578	17,578	17,578
Sanlam Investments UK Limited	0	0	0	0	0	0	0	0
Santander Asset Management - S G F I M , S A	0	0	0	0	0	0	0	0
Santander Asset Management UK Limited	0	0	0	0	0	0	0	0
Santander Private Banking Gestion, S A , S G I I C	0	0	0	0	0	0	0	0
Santori & Peters	0	0	0	0	0	0	0	0
Sarbit Advisory Services Inc	0	0	0	0	132,590	132,590	132,590	132,590
Sberbank Asset Management	0	0	0	0	0	72	72	87
Schafer Cullen Capital Management, Inc	0	0	0	0	0	0	0	0
Schaper, Benz & Wise Investment Counsel, Inc	28,370	27,070	25,500	25,340	23,295	24,240	25,615	25,665
Schmid & Partenaires Management Services S A	0	0	0	0	0	0	0	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018

Schonfeld Group Holdings LLC	46,579	46,579	46,579	46,579	46,579	46,579	0	0
Schonfeld Strategic Advisors LLC	0	0	18,547	0	0	0	7,619	0
Schroder & Co Bank AG	0	0	0	0	0	0	0	0
Schroder Investment Management (Europe) S A	0	0	2,295	2,295	2,295	2,295	2,295	2,295
Schroder Investment Management (Switzerland) AG	0	0	0	0	0	0	0	0
Schroder Investment Management (Taiwan) Limited	1,091	1,091	0	0	0	0	0	0
Schroder Investment Management Ltd (SIM)	396,865	231,078	0	278	1,038	1,819	196,955	416,753
Schroder Investment Management North America Inc	154,711	0	0	0	0	0	0	19,045
Schulhoff & Company, Inc	4,598	4,598	4,598	3,763	0	0	0	0
Schwartz Investment Counsel, Inc	5,400	6,400	6,400	12,400	6,400	6,400	6,400	6,400
Schweizerische Nationalbank	1,060,532	1,049,032	1,056,832	1,344,432	1,387,332	1,400,732	1,403,332	1,217,732
Schwerin Boyle Capital Management, Inc	5,950	5,650	5,650	5,650	5,650	5,650	0	0
ScienCast Management LP	8,900	0	0	0	0	0	21,038	13,922
Scotia Capital Inc	6,895	7,353	8,178	13,066	13,018	12,560	8,983	8,988
Scottish Friendly Asset Managers Limited	0	0	0	0	0	0	0	0
Scout Investments, Inc	123,893	137,655	198,086	58,683	47,398	39,527	16,807	13,695
SCP Investment, LP	0	0	0	0	0	0	21,859	0
Seacrest Wealth Management, LLC	0	0	0	0	0	0	1,693	1,694
SEB Investment Management AB	64,438	65,938	0	44,939	45,796	45,796	42,096	41,496
SECOR Capital Advisors, LP	0	0	0	0	0	0	12,278	0
Securian Asset Management, Inc	36,971	37,474	37,994	38,065	38,145	38,473	38,281	38,081
Security Kapitalanlage AG	4,220	4,220	4,220	4,220	4,220	4,220	4,220	4,220
Security National Bank Sioux City	40,620	41,721	41,784	45,659	46,823	49,117	62,341	85,221
Security National Trust Company	2,780	2,780	2,685	2,635	1,935	1,920	1,166	1,100
Segall Bryant & Hamill, LLC	51,490	50,431	51,683	52,650	51,622	51,772	44,454	40,765
Segment Wealth Management, LLC	80,320	80,419	84,930	84,373	84,498	50,186	50,617	50,617
SEI Investments Canada	4,927	4,427	4,627	4,527	4,527	4,727	4,527	1,627
SEI Investments Management Corporation	339,547	383,143	417,314	377,394	344,876	295,365	284,064	5,663
Seizert Capital Partners, L L C	5,267	5,167	4,595	0	0	0	0	0
Sella SGR S p A	0	1,500	0	0	0	0	0	0
Sentinel Trust Company, LBA	0	0	0	14,355	11,130	56,530	84,995	39,230
Sentry Investment Management, L L C	9,892	11,614	10,902	29,317	92,158	107,737	110,066	101,854
Seven Eight Capital, LP	0	0	7,503	0	0	0	77,103	0
SevenBridge Financial Group, LLC	180	180	180	2,333	2,483	4,551	4,535	4,535
SG Americas Securities, L L C	31,517	26,328	74,349	67,499	12,594	32,273	129,213	66,036
SG Value Partners AG	0	0	0	0	0	0	0	0
SG3 Management, LLC	0	0	10,000	0	0	0	0	0
Sheaff Brock Investment Advisors, LLC	0	0	3,570	5,662	6,401	6,265	0	0
Sheets Smith Wealth Management	0	18,208	17,340	0	0	0	0	0
Shell Asset Management Company B V	0	28,160	23,516	23,045	25,618	16,688	25,069	28,353
Shelter Life Insurance Co	0	0	0	0	0	0	0	0
Shelton Capital Management	4,202	4,202	4,002	4,002	33,402	30,602	10,602	0
Shepherd Kaplan Krochuk, LLC	0	14,959	8,610	6,589	0	0	0	0
Shine Investment Advisory Services, Inc	0	0	0	0	447	495	447	447
Shinko Asset Management Co , Ltd NLE	968	968	0	0	0	0	0	0
Sicart Associates LLC	0	0	60,295	66,315	68,565	68,415	102,555	125,765
Siemens Fonds Invest GmbH	1,641	1,746	1,659	1,775	1,711	1,981	1,814	1,814
Sigma Planning Corporation	5,289	5,089	5,683	6,337	6,838	6,593	6,016	5,679
Signaturefd, LLC	1,225	519	0	0	0	0	0	1,617
Signet Financial Management, LLC	0	0	0	0	0	0	0	170
SII Investments Inc NLE	0	6,629	0	0	0	0	0	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020

Schonfeld Group Holdings LLC	0	0	0	0	0	0	0	0
Schonfeld Strategic Advisors LLC	0	0	13,100	0	0	0	0	41,826
Schroder & Co Bank AG	2,950	2,950	2,950	2,950	5,900	5,900	0	0
Schroder Investment Management (Europe) S A	0	0	0	0	0	1,129	1,129	1,129
Schroder Investment Management (Switzerland) AG	0	0	0	0	0	1,129	1,129	0
Schroder Investment Management (Taiwan) Limited	0	0	0	0	0	0	0	0
Schroder Investment Management Ltd (SIM)	442,907	326,877	304,115	308,122	360,210	479,889	398,146	17,410
Schroder Investment Management North America Inc	19,860	0	0	0	0	0	0	460
Schulhoff & Company, Inc	0	0	0	0	0	0	0	0
Schwartz Investment Counsel, Inc	6,400	6,400	0	0	10,000	15,000	0	0
Schweizerische Nationalbank	1,260,332	1,219,932	1,244,232	1,267,632	1,224,532	1,241,484	1,185,484	1,459,484
Schwerin Boyle Capital Management, Inc	0	0	0	0	0	0	0	0
ScienCast Management LP	0	6,182	0	0	0	0	7,900	0
Scotia Capital Inc	8,988	7,863	7,631	6,750	0	0	0	0
Scottish Friendly Asset Managers Limited	0	0	0	0	0	0	130	130
Scout Investments, Inc	11,868	12,123	11,558	11,449	11,730	12,414	0	0
SCP Investment, LP	0	0	0	0	0	0	0	0
Seacrest Wealth Management, LLC	2,195	1,895	1,196	1,197	0	0	0	0
SEB Investment Management AB	41,496	43,196	43,196	43,196	51,096	43,396	42,996	15,596
SECOR Capital Advisors, LP	0	0	0	0	0	0	0	0
Securian Asset Management, Inc	38,505	38,526	39,354	39,080	39,506	39,106	37,735	37,140
Security Kapitalanlage AG	4,220	4,220	4,220	4,220	4,220	4,220	4,220	1,853
Security National Bank Sioux City	88,696	92,296	0	41,904	46,885	51,145	0	0
Security National Trust Company	1,100	1,500	850	500	500	350	350	250
Segall Bryant & Hamill, LLC	40,252	38,294	29,699	27,745	27,163	0	0	0
Segment Wealth Management, LLC	50,617	50,431	0	0	0	0	0	0
SEI Investments Canada	1,427	1,227	1,227	1,227	1,177	1,177	1,177	1,129
SEI Investments Management Corporation	238,538	230,348	230,348	228,366	256,862	272,176	261,012	298,146
Seizert Capital Partners, L L C	0	0	0	0	0	0	0	0
Sella SGR S p A	0	0	0	0	0	0	0	0
Sentinel Trust Company, LBA	26,847	11,742	0	0	0	0	0	0
Sentry Investment Management, L L C	24,707	24,707	24,067	22,103	23,014	6,410	0	0
Seven Eight Capital, LP	0	0	28,203	0	0	0	0	0
SevenBridge Financial Group, LLC	4,462	3,049	2,299	2,232	1,812	0	0	0
SG Americas Securities, L L C	0	51,833	118,477	346,082	104,208	67,310	0	359,394
SG Value Partners AG	0	0	0	0	1,607	1,607	0	0
SG3 Management, LLC	0	0	0	0	0	0	0	0
Sheaff Brock Investment Advisors, LLC	0	0	0	0	0	0	0	0
Sheets Smith Wealth Management	0	0	0	0	0	0	0	0
Shell Asset Management Company B V	33,591	28,658	24,675	24,675	24,675	24,675	15,394	7,623
Shelter Life Insurance Co	200,100	200,100	194,900	194,900	183,940	114,540	0	0
Shelton Capital Management	0	0	2,792	2,792	2,792	2,792	2,792	2,792
Shepherd Kaplan Krochuk, LLC	0	0	0	0	0	0	0	0
Shine Investment Advisory Services, Inc	447	447	447	447	447	447	0	0
Shinko Asset Management Co , Ltd NLE	0	0	0	0	0	0	0	0
Sicart Associates LLC	127,095	127,095	135,425	135,125	157,060	731,310	815,215	856,165
Siemens Fonds Invest GmbH	1,843	1,843	1,843	2,565	2,565	2,565	2,565	3,312
Sigma Planning Corporation	5,741	5,573	0	0	0	0	0	0
Signaturefd, LLC	1,940	2,289	768	1,276	1,139	1,509	1,077	1,313
Signet Financial Management, LLC	85	85	0	0	0	0	0	0
SII Investments Inc NLE	0	0	0	0	0	0	0	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018

Silvant Capital Management LLC	0	0	0	0	278	278	278	278
Silvercrest Asset Management Group LLC	58,028	56,628	56,657	58,507	58,407	58,407	60,457	59,187
Simmons First Trust Company N A	20,001	20,351	19,751	19,051	18,298	16,556	18,033	17,605
Simon Quick Advisors, LLC	0	0	0	302	302	302	0	0
Simplex Trading, LLC	0	0	7,889	0	0	118,044	8,674	32,763
SinoPac Securities Investment Trust Co , Ltd	3,007	0	0	0	0	0	0	0
Sionna Investment Managers Inc	10,048	9,368	6,517	6,517	6,239	10,182	10,182	9,577
Sirios Capital Management, L P	117,787	0	0	0	0	0	0	0
Sjunde AP-fonden	0	0	342,836	354,836	354,836	354,836	372,824	372,824
Skandia Fonder AB	0	5,500	6,500	6,500	6,500	6,500	6,500	6,500
Slate Path Capital LP	0	0	0	0	0	0	610,000	0
Smith Hayes Advisers, Inc NLE	6,278	0	0	0	0	0	0	0
Smith, Moore & Company	7,341	7,341	7,236	7,111	7,261	7,887	8,019	7,923
Smithfield Trust Company	250	250	250	250	350	250	0	0
Snow Capital Management, L P NLE	97,302	97,302	53,684	53,684	0	0	0	0
Snow Garrett Wealth Management	0	0	0	0	0	0	0	0
Société Générale Gestion	24,400	24,400	0	0	0	0	7,953	360
Société Générale Private Banking	31,517	31,517	31,517	31,517	31,517	31,517	31,517	31,517
Sofos Investments, Inc	0	0	0	0	0	0	0	0
Solaris Asset Management, LLC	0	0	0	0	0	1,700	1,875	0
Sonora Investment Management Group, LLC	43	43	43	343	343	89	43	43
SOPRANO SGR S p A	0	0	0	13,500	0	0	0	0
Sound Income Strategies, LLC	0	0	0	0	0	0	109	209
Source For Alpha (Deutschland) AG	0	0	0	0	0	0	3,176	3,334
South Dakota Investment Council	979,325	1,038,325	847,405	855,095	716,955	745,225	697,375	699,177
Southport Capital, Inc	565	0	0	0	0	0	0	0
Sowell Management Services	0	0	434	0	0	0	0	0
Sparinvest S A	4,272	4,272	2,500	1,500	1,500	1,500	1,500	3,600
Spark Investment Management LLC	0	0	0	0	0	0	0	0
SPC Financial, Inc	5,950	5,650	5,200	4,800	4,500	0	0	0
Spears Abacus Advisors LLC	10,100	10,100	9,700	9,700	9,700	9,700	9,700	9,700
SpiderRock Advisors LLC	0	0	0	3,223	0	0	0	0
SpiderRock Trading LLC NLE	1,500	1,500	0	0	0	0	0	0
Spot Trading LLC NLE	0	0	0	3,839	5,722	29,206	29,206	29,206
Sprucegrove Investment Management, Ltd	1,122,490	811,890	555,400	448,400	354,000	354,000	290,800	253,000
Spuerkeess Asset Management	1,779	1,779	1,779	1,779	36,679	121,587	164,687	164,687
Squar Milner Financial Services, L L C	0	0	0	0	0	0	0	0
Squarepoint Capital LLP	5,800	0	0	57,209	0	84,317	132,761	0
SRB Corporation	0	0	0	0	0	0	0	0
SRS Capital Advisors, Inc	0	0	93	0	47	0	0	71
St Bedrijfstakpensioenfondsvoor de Media PNO	16,800	16,800	16,800	16,800	0	0	0	0
St Denis J Villere & Company, LLC	0	1,145,500	1,164,940	1,172,690	1,227,640	1,209,440	1,105,490	1,425,135
St Galler Kantonalbank AG	760	760	760	561	788	788	788	788
St James's Place Wealth Management Plc	38,075	38,388	38,388	38,388	38,388	38,388	38,388	38,388
StanCorp Investment Advisers, Inc	224	224	224	0	0	0	0	0
Standard Life Investments (USA) Ltd NLE	29,164	29,164	29,164	29,164	29,164	29,164	0	0
State of Wisconsin Investment Board	452,699	443,099	407,550	232,359	275,709	288,867	302,301	459,018
State Street Global Advisors (France) S A	54,326	43,626	24,850	21,627	20,726	20,872	20,726	20,726
State Street Global Advisors (Japan) Co , Ltd	18,600	18,600	18,581	18,581	18,581	18,581	18,602	18,602
State Street Global Advisors (UK) Ltd	209,563	226,738	225,509	236,683	261,398	283,527	314,707	285,145
State Street Global Advisors (US)	18,844,770	19,250,446	19,791,339	19,938,329	20,068,849	19,680,253	20,018,017	20,146,491

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020
Silvant Capital Management LLC	278	278	278	278	278	228	228	228
Silvercrest Asset Management Group LLC	59,083	57,913	32,863	31,113	26,084	24,844	21,644	10,324
Simmons First Trust Company N A	14,195	12,374	12,024	11,174	10,649	9,034	0	0
Simon Quick Advisors, LLC	0	0	125	0	0	0	0	0
Simplex Trading, LLC	0	0	0	0	0	4,002	0	0
SinoPac Securities Investment Trust Co , Ltd	0	0	0	0	0	0	0	0
Sionna Investment Managers Inc	9,577	8,577	2,672	2,672	0	0	0	0
Sirios Capital Management, L P	0	0	0	0	0	0	0	0
Sjunde AP-fonden	398,325	398,325	398,325	398,325	398,325	398,325	398,325	398,325
Skandia Fonder AB	6,500	7,400	7,400	5,600	3,600	5,600	5,600	9,900
Slate Path Capital LP	0	0	0	0	0	0	0	0
Smith Hayes Advisers, Inc NLE	0	0	0	0	0	0	0	0
Smith, Moore & Company	7,999	7,999	0	7,296	7,296	0	0	0
Smithfield Trust Company	0	0	0	0	0	50	0	0
Snow Capital Management, L P NLE	0	0	72,060	99,560	69,500	0	0	0
Snow Garrett Wealth Management	0	0	0	0	0	64	0	0
Société Générale Gestion	360	360	0	0	0	0	0	0
Société Générale Private Banking	0	0	0	0	0	0	0	0
Sofos Investments, Inc	110	0	0	58	58	58	58	0
Solaris Asset Management, LLC	0	0	0	0	0	0	0	0
Sonora Investment Management Group, LLC	43	43	43	69	43	43	43	43
SOPRANO SGR S p A	0	0	0	0	0	0	0	0
Sound Income Strategies, LLC	209	109	109	109	109	109	165	109
Source For Alpha (Deutschland) AG	3,302	3,232	3,230	3,238	2,629	2,627	0	0
South Dakota Investment Council	640,936	561,437	561,437	598,755	533,665	502,365	403,645	404,537
Southport Capital, Inc	0	430	0	0	0	0	0	0
Sowell Management Services	0	0	0	0	0	720	1,639	1,690
Sparinvest S A	3,600	5,700	0	0	0	0	0	2,100
Spark Investment Management LLC	0	0	0	0	0	0	77,200	77,200
SPC Financial, Inc	0	0	0	0	0	0	0	0
Spears Abacus Advisors LLC	9,700	9,700	9,700	9,700	9,200	9,200	9,200	0
SpiderRock Advisors LLC	0	0	0	0	0	0	0	0
SpiderRock Trading LLC NLE	0	0	0	0	0	0	0	0
Spot Trading LLC NLE	29,206	29,206	29,206	0	0	0	0	0
Sprucegrove Investment Management, Ltd	0	0	0	0	0	0	0	0
Spuerkeess Asset Management	227,300	227,300	316,400	316,400	244,422	244,422	269,286	269,286
Squar Milner Financial Services, L L C	92	0	139	139	0	0	0	0
Squarepoint Capital LLP	0	30,844	0	28,250	57,833	0	0	244,270
SRB Corporation	0	0	15,367	0	0	0	0	0
SRS Capital Advisors, Inc	140	0	0	0	0	0	0	0
St Bedrijfstakpensioenfondsvoor de Media PNO	0	0	0	0	0	0	0	0
St Denis J Villere & Company, LLC	1,538,445	1,537,655	195,273	0	0	0	0	0
St Galler Kantonalbank AG	788	788	788	788	788	788	788	0
St James's Place Wealth Management Plc	38,388	0	0	0	0	0	0	0
StanCorp Investment Advisers, Inc	0	0	0	0	0	0	0	0
Standard Life Investments (USA) Ltd NLE	0	0	0	0	0	0	0	0
State of Wisconsin Investment Board	478,291	413,749	95,942	509,135	138,341	47,651	402,809	187,241
State Street Global Advisors (France) S A	20,726	18,526	18,527	12,277	12,319	12,438	12,913	13,278
State Street Global Advisors (Japan) Co , Ltd	18,602	18,602	17,749	17,952	17,952	17,952	17,789	18,058
State Street Global Advisors (UK) Ltd	283,849	356,794	333,279	80,161	138,186	138,083	134,792	134,431
State Street Global Advisors (US)	19,973,748	19,840,945	20,620,203	19,903,500	19,383,737	18,945,518	20,590,533	24,284,925

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018

State Street Global Advisors Australia Ltd	0	0	0	0	0	0	1,002	1,002
State Street Global Advisors Ireland Limited	30,220	40,077	40,753	49,559	51,374	55,260	61,412	99,504
State Street Global Advisors Ltd (Canada)	8,766	8,782	10,110	10,465	11,019	11,146	11,551	11,681
State Teachers Retirement System of Ohio	605,775	598,831	602,651	543,772	274,960	274,960	274,960	274,804
Steigerwald, Gordon & Koch Inc	114,274	118,119	120,357	128,240	131,457	120,810	126,940	130,012
Steinberg Global Asset Management, Ltd NLE	7,094	7,634	7,824	8,743	9,051	9,432	11,887	15,340
Stephens Capital Management	0	0	3,640	9,089	10,675	11,020	11,708	12,224
Stephenson National Bank and Trust	0	0	0	0	0	0	0	0
Sterling Capital Management, LLC	3,847	100,568	4,159	0	0	0	0	0
Sterne Agee Asset Management, Inc NLE	883	883	883	883	883	883	883	883
Sterne Agee Investment Advisory Services NLE	561	561	561	561	561	561	561	561
Stevens Capital Management LP	38,546	87,665	0	64,679	0	0	189,703	0
Steward Partners Investment Advisory, LLC	0	0	10,703	15,381	14,810	2,944	641	329
Stifel Independent Advisors, LLC	283	334	290	496	521	561	561	561
Stifel Nicolaus Investment Advisors	28,124	34,314	48,744	51,177	52,178	44,999	45,836	111,319
Stone Ridge Asset Management LLC	600	600	0	0	0	0	0	0
Stonehage Fleming Family and Partners	1,000	1,000	1,000	1,000	1,000	1,000	0	0
Stonehage Fleming Financial Services Holdings, Ltd	1,600	1,000	1,000	0	0	0	0	0
StoneRidge Investment Partners, LLC	0	0	0	0	0	47,302	112,305	160,103
Storebrand Kapitalforvaltning AS	92,102	94,105	94,323	96,846	94,079	94,079	90,690	88,051
Stratos Wealth Partners, Ltd	0	8,356	0	0	0	0	6,370	6,968
Stratton Management Company NLE	9,262	9,262	0	0	0	0	0	0
Stuyvesant Capital Management Corp	0	0	0	0	0	0	47,489	47,294
Sugarloaf Wealth Management, LLC	0	0	0	0	0	0	0	0
Sumitomo Life Insurance Co	16,568	14,774	26,026	24,504	25,581	25,125	24,041	22,961
Sumitomo Mitsui DS Asset Management Company, Limited	28,973	28,892	28,527	31,709	30,518	29,157	28,415	26,296
Sumitomo Mitsui Trust Asset Management Co., Ltd	25,121	25,121	25,121	25,121	25,100	25,100	25,100	25,100
Sumitomo Mitsui Trust Bank, Limited	1,218,300	1,091,255	1,077,995	1,059,554	1,066,542	1,060,970	1,076,800	1,076,482
Summit Capital Management, L L C NLE	32,185	32,185	32,185	32,185	0	0	0	0
Summit Trail Advisors, LLC	0	0	0	0	0	0	756	0
Sun Life Assurance Company of Canada (Toronto)	0	0	203	205	0	0	0	0
SunAmerica Asset Management, LLC	156,273	159,888	156,637	156,707	166,490	149,633	164,679	165,123
Sunnymead Asset Management, Inc NLE	16,900	8,600	10,100	10,100	0	0	0	0
Susquehanna Fundamental Investments, LLC	0	0	0	0	0	0	0	0
Susquehanna International Group, LLP	12,296	23,100	23,100	845,349	548,876	937,055	768,104	1,171,088
SVB Wealth LLC	4,390	3,906	0	0	0	0	0	0
Swan Asset Management SA	0	0	0	0	0	0	0	0
Swedbank Robur Fonder AB	409,489	408,587	394,324	394,324	411,469	36,469	90,013	27,624
Swiss Life Asset Management	2,300	2,300	8,363	0	0	0	0	0
Swisscanto Fondsleitung AG	8,334	8,334	8,334	0	9,094	9,392	9,192	8,704
Sygnia Asset Management	0	0	0	0	0	0	0	0
Symphonia SGR Spa	0	15,885	15,885	0	0	0	0	0
Synovus Trust Company, N A	10,003	8,079	7,453	6,763	4,777	4,185	3,310	2,985
Systematic Financial Management, L P	334,808	324,451	152,349	0	0	0	0	0
T&D Asset Management Co., Ltd	1,723	1,723	0	0	0	0	0	0
T Rowe Price Associates, Inc	13,015,270	17,780,475	14,779,061	14,673,859	15,119,986	17,027,506	17,412,114	16,860,304
T Rowe Price International Ltd	0	2,959	5,279	0	0	12,381	372	936
Tangerine Investment Management Inc	7,553	7,673	8,477	8,563	9,133	9,133	9,453	10,179
Tarbox Family Office, Inc	665	295	295	295	295	295	295	309
Taube, Hodson, Stonex Partners, LLP NLE	164,556	164,556	0	0	0	0	0	0
Taylor, Cottrill, Erickson & Associates, Inc	0	0	0	0	0	47,912	48,462	49,335

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020
State Street Global Advisors Australia Ltd	2,902	2,902	2,902	2,902	2,902	3,070	3,070	1,170
State Street Global Advisors Ireland Limited	111,691	117,889	112,564	116,519	117,793	119,029	119,522	128,247
State Street Global Advisors Ltd (Canada)	12,402	12,548	11,431	11,633	11,734	11,734	12,126	12,275
State Teachers Retirement System of Ohio	315,402	313,760	319,997	324,296	57,128	59,761	62,722	45,109
Steigerwald, Gordon & Koch Inc	125,992	125,420	0	0	0	0	0	0
Steinberg Global Asset Management, Ltd NLE	15,734	15,879	16,867	19,032	19,032	0	0	0
Stephens Capital Management	10,222	9,955	9,210	0	0	0	0	0
Stephenson National Bank and Trust	0	0	0	0	0	0	200	200
Sterling Capital Management, LLC	0	0	0	0	0	0	0	0
Sterne Agee Asset Management, Inc NLE	0	0	0	0	0	0	0	0
Sterne Agee Investment Advisory Services NLE	0	0	0	0	0	0	0	0
Stevens Capital Management LP	0	58,843	183,488	0	0	0	0	0
Steward Partners Investment Advisory, LLC	2,221	6,877	0	6,259	6,202	5,961	5,431	4,133
Stifel Independent Advisors, LLC	794	1,991	2,109	1,935	1,935	1,508	1,508	2,419
Stifel Nicolaus Investment Advisors	124,910	216,041	258,989	249,732	245,189	231,159	188,958	238,550
Stone Ridge Asset Management LLC	0	0	0	0	0	0	0	0
Stonehage Fleming Family and Partners	0	0	0	0	0	0	0	0
Stonehage Fleming Financial Services Holdings, Ltd	0	0	0	0	0	0	0	0
StoneRidge Investment Partners, LLC	144,995	39,324	64,536	0	18,758	39,845	35,034	112,192
Storebrand Kapitalforvaltning AS	89,220	89,220	93,075	99,878	95,993	98,633	10,677	12,196
Stratos Wealth Partners, Ltd	5,897	0	0	0	7,876	0	0	0
Stratton Management Company NLE	0	0	0	0	0	0	0	0
Stuyvesant Capital Management Corp	56,199	53,624	44,069	44,069	44,069	44,069	44,069	44,069
Sugarloaf Wealth Management, LLC	0	0	0	0	0	0	150	0
Sumitomo Life Insurance Co	23,805	23,514	23,969	21,870	22,427	20,679	21,715	20,633
Sumitomo Mitsui DS Asset Management Company, Limited	26,483	26,023	26,023	26,100	20,634	23,297	23,297	22,907
Sumitomo Mitsui Trust Asset Management Co., Ltd	25,079	25,079	25,079	25,079	217	217	217	217
Sumitomo Mitsui Trust Bank, Limited	1,188,620	1,385,868	1,543,964	1,416,701	1,402,800	1,662,416	1,416,520	1,488,003
Summit Capital Management, L L C NLE	0	0	0	0	0	0	0	0
Summit Trail Advisors, LLC	0	0	0	0	0	0	0	0
Sun Life Assurance Company of Canada (Toronto)	0	0	0	0	0	0	0	0
SunAmerica Asset Management, LLC	163,886	172,833	163,192	160,560	158,664	157,760	162,087	151,540
Sunnymeath Asset Management, Inc NLE	0	0	0	0	0	0	0	0
Susquehanna Fundamental Investments, LLC	0	0	197,199	109,683	0	186,377	186,877	103,900
Susquehanna International Group, LLP	365,561	394,884	789,421	658,034	1,219,826	1,277,065	373,512	766,705
SVB Wealth LLC	0	0	0	0	0	0	0	0
Swan Asset Management SA	0	0	1,150	0	0	0	0	0
Swedbank Robur Fonder AB	32,694	32,694	24,830	24,830	55,313	55,313	0	0
Swiss Life Asset Management	0	2,300	6,557	1,672	1,672	1,672	2,740	3,079
Swisscanto Fondsleitung AG	9,358	6,929	6,796	6,386	6,432	6,275	0	0
Sygnia Asset Management	1,607	1,607	1,405	1,023	1,023	1,145	820	1,367
Symphonia SGR Spa	0	0	0	0	0	0	0	0
Synovus Trust Company, N A	2,514	2,514	948	808	708	658	658	593
Systematic Financial Management, L P	0	0	0	0	0	0	0	0
T&D Asset Management Co., Ltd	0	0	0	0	0	0	0	0
T Rowe Price Associates, Inc	17,085,867	15,513,239	10,139,392	4,258,373	3,881,901	3,335,898	6,033,226	4,995,675
T Rowe Price International Ltd	1,004	1,004	58	58	58	58	58	58
Tangerine Investment Management Inc	10,179	10,579	9,859	10,434	10,434	10,434	10,532	10,912
Tarbox Family Office, Inc	309	309	64	31	31	43	0	501
Taube, Hodson, Stonex Partners, LLP NLE	0	0	0	0	0	0	0	0
Taylor, Cottrill, Erickson & Associates, Inc	49,235	49,335	30,035	29,485	25,190	19,810	11,785	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018

TCG Advisors, LP	0	0	0	0	0	0	0	0
TCI Wealth Advisors, Inc	135	35	135	35	35	35	35	35
TCW Asset Management Company LLC	33,025	30,650	28,000	0	0	0	0	0
TD Asset Management Inc	166,178	163,218	135,532	135,292	125,122	117,375	113,563	109,142
TD Asset Management USA, Inc	10,038	10,111	10,171	10,371	10,426	9,293	9,298	9,233
TD Securities, Inc	2,080	11,074	65,430	102,458	128,867	144,476	164,089	205,586
TD Waterhouse Private Investment Counsel, Inc	8,354	8,243	6,887	6,479	5,412	6,603	6,556	6,569
Teacher Retirement System of Texas	27,077	155,404	117,040	32,678	0	5,171	102,215	84,391
Team Financial Strategies	1,317	1,317	1,317	1,317	1,317	1,317	1,317	0
Telemus Capital, LLC	0	0	0	0	0	0	50	0
Templeton Asset Management Ltd	294,500	280,270	280,270	280,270	280,270	280,270	280,270	280,270
Templeton Global Advisors Ltd	469,780	469,780	469,780	469,780	469,780	469,780	469,780	469,780
Templeton Investment Counsel, L L C	6,895,093	6,864,004	6,243,115	5,529,842	5,647,389	5,619,124	8,442,049	8,579,357
Tennessee Consolidated Retirement System	161,364	249,969	148,781	138,615	139,035	120,842	133,546	91,594
Teton Advisors, Inc	500	500	500	500	500	500	500	0
Texan Capital Management, Inc NLE	8,214	6,564	7,064	7,064	7,064	6,925	6,925	6,925
Texas Permanent School Fund	122,812	116,850	113,663	110,939	106,874	105,568	103,992	98,558
Teza Capital Management LLC	0	0	0	0	0	0	0	0
TFG Advisers LLC	0	0	0	0	0	0	0	0
The Capital Advisory Group Advisory Services, LLC	0	0	0	0	0	0	0	300
The CAPROCK Group, Inc	0	0	0	0	0	7,038	0	0
The Colony Group, LLC	0	0	0	0	0	0	0	0
The Commerce Trust Company	53,719	52,443	51,403	50,772	45,809	43,302	38,249	38,398
The Dai-ichi Life Insurance Company, Limited	0	0	65,555	7,228	5,403	5,403	5,403	5,403
The Index Group, Inc	102	135	248	519	787	1,043	1,279	1,925
The Institute for Wealth Management, LLC	0	0	0	0	10,136	10,690	11,738	11,115
The London Company of Virginia, LLC	0	0	0	4,460	0	0	0	0
The MassMutual Trust Company, FSB	19,527	19,527	12,966	13,181	12,958	11,888	4,705	4,678
The Mitchell Group, Inc	786,683	543,923	427,179	581,019	593,457	539,267	487,057	328,687
The Patriot Financial Group, LLC	0	0	150	150	150	150	0	71
The Patten Group, Inc	17,495	23,660	27,343	27,968	26,517	27,417	20,145	20,205
The Private Trust Company, N A	0	3,458	0	0	4,518	0	0	0
The Retirement Systems of Alabama	273,838	272,757	265,955	264,390	265,282	307,414	307,207	304,827
The Rikoon Group, LLC	0	5,160	3,510	0	0	0	0	0
The Treasurer of the State of North Carolina	0	0	0	0	0	0	0	71,979
The Trust Company of Toledo, NA	4,241	4,320	4,304	0	0	0	0	0
The Trust Company of Vermont	18,730	17,069	18,038	13,866	9,265	7,794	6,514	4,124
The Vanguard Group, Inc	24,426,777	25,016,876	25,525,568	26,147,264	26,268,945	26,513,710	26,812,794	33,403,683
THEAM NLE	27,188	29,326	17,283	13,481	10,331	15,233	0	0
Third Avenue Management LLC	524,055	405,279	257,260	0	0	0	0	0
Thompson Investment Management, Inc	74,152	71,076	61,876	64,693	64,864	66,619	0	0
Thompson, Davis & Co., Inc (Asset Management)	509	1,493	1,503	2,009	1,121	872	475	0
Thompson, Siegel & Walmsley LLC	400	400	400	400	400	400	400	0
Three Bridges Capital, LP	0	0	0	0	0	0	0	0
Thrivent Asset Management, LLC	11,530	12,450	13,140	14,020	14,380	15,464	15,394	15,897
Thurgauer Kantonalbank	0	0	0	0	441	576	770	748
Tiedemann Advisors, LLC	0	0	0	0	5,118	0	0	0
TIFF Advisory Services, Inc	0	0	0	1,353	2,631	1,931	1,671	3,630
Tilney Investment Management	57,960	57,960	57,960	57,960	57,960	57,960	57,960	57,960
Timber Hill LLC	0	0	23,110	13,313	0	0	8,113	11,576
Timothy Partners, Ltd	0	0	0	0	0	0	0	331

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020

TCG Advisors, LP	0	0	0	85	85	0	0	0
TCI Wealth Advisors, Inc	80	80	142	142	142	471	116	643
TCW Asset Management Company LLC	0	0	0	0	0	0	0	0
TD Asset Management Inc	108,915	109,179	111,836	113,224	109,947	102,047	89,972	91,472
TD Asset Management USA, Inc	11,233	11,233	11,233	11,233	11,008	8,558	8,558	0
TD Securities, Inc	310,875	302,606	430,066	247,124	223,247	233,768	249,590	195,932
TD Waterhouse Private Investment Counsel, Inc	8,728	8,536	7,967	0	0	0	0	0
Teacher Retirement System of Texas	77,387	46,988	35,299	31,251	31,251	0	150,199	174,826
Team Financial Strategies	0	1,086	1,086	1,086	0	0	1,090	0
Telemus Capital, LLC	0	0	0	0	0	0	0	0
Templeton Asset Management Ltd	508,270	508,270	474,970	606,180	440,780	440,780	469,440	0
Templeton Global Advisors Ltd	0	0	0	0	0	0	0	0
Templeton Investment Counsel, L L C	10,853,000	10,683,069	10,666,989	13,586,862	12,888,650	16,639,113	14,990,603	6,558,733
Tennessee Consolidated Retirement System	148,982	85,382	98,358	93,934	142,606	93,304	89,585	88,410
Teton Advisors, Inc	0	0	0	0	0	0	0	0
Texan Capital Management, Inc NLE	0	0	0	0	0	0	0	0
Texas Permanent School Fund	93,255	85,864	76,340	73,033	72,496	69,793	66,260	68,342
Teza Capital Management LLC	0	34,503	0	24,422	0	0	0	34,038
TFG Advisers LLC	0	0	0	0	0	0	113	0
The Capital Advisory Group Advisory Services, LLC	300	300	300	300	300	300	0	300
The CAPROCK Group, Inc	0	0	0	0	0	0	0	0
The Colony Group, LLC	36,489	37,509	9,300	49,508	68,971	66,738	57,283	59,291
The Commerce Trust Company	37,990	40,157	37,235	35,670	35,608	36,385	29,624	25,082
The Dai-ichi Life Insurance Company, Limited	5,403	5,403	0	0	0	0	0	0
The Index Group, Inc	1,610	1,668	2,222	2,389	3,017	3,646	4,558	4,997
The Institute for Wealth Management, LLC	11,634	11,599	0	0	0	0	0	0
The London Company of Virginia, LLC	0	0	0	0	0	0	0	0
The MassMutual Trust Company, FSB	4,449	4,310	3,477	3,434	3,351	3,308	3,197	2,753
The Mitchell Group, Inc	0	0	0	0	0	0	0	0
The Patriot Financial Group, LLC	0	0	0	0	0	0	0	0
The Patten Group, Inc	15,343	11,793	9,873	9,473	0	0	0	0
The Private Trust Company, N A	0	0	0	0	0	0	0	0
The Retirement Systems of Alabama	392,028	176,388	176,388	174,807	175,313	164,639	165,265	165,304
The Rikoon Group, LLC	0	0	0	0	0	0	0	0
The Treasurer of the State of North Carolina	118,920	187,185	190,293	192,169	190,839	95,814	96,524	161,074
The Trust Company of Toledo, NA	0	4,832	0	0	0	0	0	0
The Trust Company of Vermont	3,894	3,619	2,039	1,914	1,814	1,699	1,154	0
The Vanguard Group, Inc	39,826,087	39,804,304	40,348,079	41,580,568	42,297,495	43,010,734	43,903,795	45,190,421
THEAM NLE	0	0	0	0	0	0	0	0
Third Avenue Management LLC	0	0	0	0	0	0	0	0
Thompson Investment Management, Inc	0	0	0	0	0	0	0	0
Thompson, Davis & Co , Inc (Asset Management)	0	0	0	0	0	0	0	0
Thompson, Siegel & Walmsley LLC	0	0	0	0	0	0	0	0
Three Bridges Capital, LP	4,701	4,701	4,701	4,701	4,701	4,701	4,701	4,701
Thrivent Asset Management, LLC	16,047	16,410	16,704	16,759	16,913	16,913	116,912	128,909
Thurgauer Kantonalbank	1,072	1,346	1,441	1,186	1,068	1,359	1,234	1,319
Tiedemann Advisors, LLC	0	0	9,352	9,375	0	0	0	0
TIFF Advisory Services, Inc	3,630	1,671	1,671	1,671	1,671	1,671	1,671	1,671
Tilney Investment Management	0	0	0	0	0	0	0	0
Timber Hill LLC	0	0	0	0	0	0	0	0
Timothy Partners, Ltd	2,136	2,136	2,136	2,136	2,136	2,136	1,452	1,452

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018
Tirolinvest Kapitalanlagegesellschaft mbH NLE	3,000	3,000	3,000	0	0	0	0	0
Tiverton Asset Management LLC	0	0	0	0	0	0	4,688	0
TLP Trading, LLC	8,112	6,192	6,192	8,682	8,682	3,247	7,623	3,253
TOBAM	0	0	0	0	0	0	0	0
Tocqueville Asset Management LP	112,186	82,526	24,871	17,191	6,316	6,216	6,216	0
Tokio Marine Asset Management Co., Ltd	34,838	33,358	28,041	21,931	20,269	20,269	19,331	18,320
Tompkins Trust Company	225	225	175	100	100	100	100	100
Toroso Asset Management	0	0	0	0	0	0	0	0
Tortoise Capital Advisors, LLC	42	42	42	42	42	42	42	42
Tortoise Investment Management, LLC	22	22	22	22	22	22	2	2
Tower Research Capital LLC	2,110	7,586	14,151	505	1,634	0	6,249	0
Tower Wealth Managers, Inc	27,753	33,338	32,781	34,554	33,757	33,444	0	0
TradeLink Capital LLC	1,900	1,900	0	0	0	0	0	0
Tradewinds Capital Management, LLC	103	103	27	55	27	27	27	0
Tradewinds Global Investors, LLC NLE	161,343	0	0	0	0	0	0	0
Transform Wealth, LLC	17,023	16,963	17,954	0	0	0	0	0
Transparent Value, LLC	561	401	401	401	401	401	401	401
Tredje AP Fonden	30,245	25,725	23,725	24,399	28,539	38,049	41,979	42,849
Trevor Stewart Burton & Jacobsen Inc	15,210	15,210	15,210	15,210	15,210	15,210	0	0
Trexquant Investment LP	13,500	0	0	0	0	0	14,353	0
Trillium Asset Management, LLC	139,473	152,387	146,416	117,583	119,323	120,106	109,423	5,813
Triton Wealth Management, PLLC	0	0	0	0	0	0	0	0
Tru Independence LLC	0	0	0	0	0	0	0	0
True Private Wealth Advisors, LLC	0	0	0	0	0	0	0	0
Truehand, Inc	0	0	0	0	0	0	0	0
TrueWealth Management NLE	0	0	0	0	0	0	33	33
Truist Bank	39,110	33,828	32,596	23,210	20,312	22,895	15,921	38,321
Trust Co	26,424	26,761	25,399	26,779	25,944	25,289	25,943	27,241
Trust Company of Oklahoma	7,936	4,917	3,345	0	0	0	0	0
Trust Company of the Ozarks	17,376	17,376	17,376	17,376	17,376	0	0	0
Trustcore Financial Services, LLC	0	0	0	0	0	0	0	0
Trustmark Investment Advisors, Inc	0	0	0	0	0	0	0	0
Trutina Financial	19,538	18,343	17,373	17,373	17,373	17,373	17,373	17,373
Truvestments Capital LLC	0	0	0	0	0	0	0	0
Tschetter Group	0	0	0	0	0	0	0	0
TSFG, LLC	0	0	0	0	0	0	0	0
Tudor Investment Corporation	0	0	0	0	0	0	0	0
Turgot Asset Management	1,200	1,200	1,200	1,200	1,200	0	0	0
Turtle Creek Management, LLC	24,145	24,145	23,745	23,400	22,200	22,200	19,250	21,710
TVR Capital Management LP NLE	0	0	45,500	172,705	372,624	0	0	0
Twin Tree Management, LP	18,000	0	0	121,831	53,895	0	36,569	10,174
Two Oaks Investment Management, LLC	10,000	10,000	10,000	10,000	10,000	12,500	12,500	12,500
Two Sigma Investments, LP	190,154	158,009	156,526	93,712	180,123	292,826	393,094	657,390
Tyers Asset Management LLC	0	0	8,596	11,592	12,656	51,520	75,068	30,856
U S Bancorp Asset Management, Inc	300,893	281,167	248,692	227,089	213,795	188,020	154,280	145,332
U S Global Investors, Inc	0	0	0	0	0	0	0	0
UAS Asset Management	0	55,000	87,875	0	0	0	0	0
UBS (Luxembourg) S A	0	0	0	0	0	0	0	0
UBS Asset Management (Americas), Inc	92,102	131,673	124,847	173,368	229,839	250,164	238,956	237,527
UBS Asset Management (Australia) Ltd	0	0	395	395	395	395	395	395
UBS Asset Management (Switzerland)	579,417	581,440	586,883	600,970	588,995	588,132	595,112	612,937

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020
Tirolinvest Kapitalanlagegesellschaft mbH NLE	0	0	0	0	0	0	0	0
Tiverton Asset Management LLC	0	0	0	0	0	0	0	0
TLP Trading, LLC	2,299	1,753	0	0	0	0	0	0
TOBAM	0	0	0	0	0	0	0	142,953
Tocqueville Asset Management LP	0	0	0	0	0	0	0	0
Tokio Marine Asset Management Co., Ltd	17,280	16,848	17,315	17,396	17,668	17,923	17,923	18,120
Tompkins Trust Company	100	0	0	0	0	0	0	0
Toroso Asset Management	0	0	0	0	848	944	1,096	1,284
Tortoise Capital Advisors, LLC	42	42	42	96,842	118,642	0	0	0
Tortoise Investment Management, LLC	2	2	2	2	2	2	2	2
Tower Research Capital LLC	0	1,870	37,959	11,741	3,276	12,138	848	43,101
Tower Wealth Managers, Inc	0	0	0	0	0	0	0	0
TradeLink Capital LLC	0	0	0	0	0	0	0	0
Tradewinds Capital Management, LLC	0	0	0	0	0	0	0	0
Tradewinds Global Investors, LLC NLE	0	0	0	0	0	0	0	0
Transform Wealth, LLC	0	0	0	0	0	0	0	0
Transparent Value, LLC	0	0	0	0	0	0	0	0
Tredje AP Fonden	21,603	21,603	22,129	26,591	26,591	4,810	0	0
Trevor Stewart Burton & Jacobsen Inc	0	0	0	0	0	0	0	0
Trexquant Investment LP	0	35,724	271,159	0	151,824	82,043	0	207,171
Trillium Asset Management, LLC	4,379	0	0	0	0	0	0	0
Triton Wealth Management, PLLC	0	0	0	0	0	0	0	22,451
Tru Independence LLC	0	0	0	0	0	0	300	300
True Private Wealth Advisors, LLC	0	1,041	0	0	17	0	0	0
Truehand, Inc	0	0	1,440	1,440	1,440	1,440	1,440	1,440
TrueWealth Management NLE	22	252	241	241	230	230	230	230
Truist Bank	35,795	34,830	32,572	32,005	25,160	27,316	24,220	15,227
Trust Co	27,241	27,241	27,241	27,241	27,241	27,241	27,241	0
Trust Company of Oklahoma	0	0	0	0	0	0	0	0
Trust Company of the Ozarks	0	0	0	0	0	0	0	0
Trustcore Financial Services, LLC	58	0	0	0	0	0	0	0
Trustmark Investment Advisors, Inc	0	73	73	473	473	0	0	0
Trutina Financial	17,373	17,373	0	0	0	0	0	0
Truvestments Capital LLC	0	45	45	0	0	0	0	0
Tschetter Group	0	0	43,675	0	0	0	0	0
TSFG, LLC	0	0	0	67	0	0	0	0
Tudor Investment Corporation	0	51,525	103,458	35,998	0	0	59,311	104,157
Turgot Asset Management	0	0	0	0	0	0	0	0
Turtle Creek Management, LLC	21,210	21,210	16,520	15,820	13,653	8,420	0	0
TVR Capital Management LP NLE	0	0	0	0	0	0	0	0
Twin Tree Management, LP	16,554	0	49,965	218,658	25,566	81,493	59,336	40,241
Two Oaks Investment Management, LLC	12,500	12,500	12,500	12,500	12,500	12,500	12,500	0
Two Sigma Investments, LP	571,207	508,526	964,878	1,091,600	1,012,401	880,543	1,558,933	2,137,530
Tyers Asset Management LLC	17,304	29,512	43,848	31,808	21,056	26,096	26,096	26,096
U S Bancorp Asset Management, Inc	139,432	134,277	110,008	106,687	100,493	84,370	79,722	67,887
U S Global Investors, Inc	0	0	0	0	20,000	20,000	0	0
UAS Asset Management	0	0	0	0	0	0	0	0
UBS (Luxembourg) S A	0	0	0	0	0	0	0	2,600
UBS Asset Management (Americas), Inc	334,763	309,347	348,838	291,503	1,108,021	1,253,967	1,653,248	1,021,435
UBS Asset Management (Australia) Ltd	395	395	395	395	395	395	395	395
UBS Asset Management (Switzerland)	602,455	551,352	561,303	516,544	512,039	536,652	560,847	595,528

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018

UBS Asset Management (UK) Ltd	334,787	344,387	338,106	315,231	294,339	297,030	292,791	464,894
UBS Financial Services, Inc	406,104	439,952	575,238	634,826	620,012	834,166	714,592	533,062
UBS Gestión, S G I I C , S A	1,050	1,050	2,053	3,058	2,547	1,050	1,050	1,050
UBS O'Connor LLC	0	17,400	0	0	0	0	0	0
UBS Switzerland AG	0	0	0	0	0	0	0	0
Unigest, S G I I C , S A	0	0	0	621	721	1,051	0	1,499
Unigestion	0	0	0	0	0	0	0	0
Union Bank & Trust Company (Nebraska)	466	526	2,076	5,551	5,551	5,619	885	765
Union Investment Institutional GmbH	0	0	900	2,900	2,900	2,900	2,900	0
Union Investment Privatfonds GmbH	0	0	0	0	0	0	0	0
United Fire & Casualty Company	5,000	4,500	4,500	4,500	4,500	4,500	4,500	4,500
Universal-Investment-Gesellschaft mbH	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
Urquijo Gestión, S A , S G I I C , Sociedad Unipersonal	1,836	1,836	1,836	1,836	1,836	1,836	1,836	1,836
USA Mutuals Advisors, Inc	0	47	47	47	47	47	47	47
USAA Asset Management Company	0	0	0	3,703	0	0	0	0
USS Investment Management Ltd	1,380,000	680,000	0	0	0	0	0	0
Utah Retirement Systems	69,385	69,385	69,385	69,385	69,785	69,885	70,785	70,985
UTC Fund Services, Inc	0	3,704	0	3,446	0	0	0	0
V Wealth Advisors LLC	0	0	0	0	100	0	0	0
Valeo Financial Advisors LLC	0	0	0	0	0	2,944	6,485	5,716
Valex Capital AG	3,400	3,400	3,400	0	0	0	0	0
Valley National Advisers Inc	943	943	943	424	424	424	425	401
Value Asset Management GmbH	0	0	0	0	0	0	0	0
Van Eck Associates Corporation	48,219	47,114	52,360	50,027	60,184	61,890	63,957	78,131
Van Hulzen Asset Management	0	0	1,000	0	0	0	0	0
Vanguard Global Advisers LLC	0	0	0	0	0	0	0	0
Vanguard Investments Australia Ltd	178,389	189,589	167,268	172,394	179,549	183,249	184,204	186,844
Vantage Consulting Group, Inc	0	0	0	0	0	0	0	0
Vantage Investment Advisory Limited	11	0	0	0	0	0	0	0
Vaughan Nelson Investment Management, L P	27,192	26,511	25,896	25,196	24,357	24,349	23,861	21,683
Vector Wealth Management	4,209	4,284	4,584	0	0	0	0	0
Velanne Asset Management Limited	49,075	49,075	42,463	42,463	42,463	42,463	60,039	60,039
Ventura Wealth Management	0	0	0	0	0	0	0	0
Veritable, L P	24,002	23,719	26,325	25,883	20,646	18,377	16,585	15,696
Verition Fund Management LLC	0	12,900	11,500	11,725	0	0	11,486	5,800
Verity Asset Management, Inc	0	0	0	0	0	0	0	0
Versant Capital Management, Inc	0	5	5	0	0	0	0	0
Vestcor Inc	9,063	9,063	9,063	9,063	9,063	9,063	12,184	12,184
VG Asset Management SA	0	0	0	0	0	0	0	0
VI Vorsorgeinvest AG	0	12,000	6,000	6,980	980	820	820	950
Victory Capital Management Inc	4,832	7,244	7,137	6,907	6,555	6,286	6,021	202,417
Vident Investment Advisory, LLC	343	343	343	343	343	3,723	9,984	10,704
Vigilant Capital Management, LLC	0	0	0	0	0	0	0	0
Violich Capital Management, Inc	6,435	6,435	4,435	4,360	4,360	0	0	0
Virginia Retirement System	158,200	168,400	183,200	202,942	202,942	199,370	223,770	274,300
Virtu Americas LLC	19,862	66,423	123,825	11,221	8,712	0	32,170	0
Virtu Financial BD LLC	0	0	0	0	0	0	0	0
Virtus Etf Advisers LLC	0	0	0	0	0	0	0	0
Virtus Fund Advisers, LLC	278	278	278	278	0	0	0	0
Virtus Investment Advisers, Inc	0	6,378	20,493	0	0	0	4,000	0
Vista Investment Management, LLC	0	0	0	0	0	0	7,916	8,454

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020
UBS Asset Management (UK) Ltd	428,653	460,230	469,273	472,901	822,515	764,976	971,951	847,842
UBS Financial Services, Inc	400,084	410,930	277,230	335,701	333,297	761,533	339,951	242,644
UBS Gestión, S G I I C , S A	1,050	1,050	1,050	1,050	1,050	0	0	0
UBS O'Connor LLC	0	0	0	0	0	0	0	0
UBS Switzerland AG	0	0	0	0	0	0	0	18,423
Unigest, S G I I C , S A	1,501	1,501	1,501	2,002	2,002	2,002	0	0
Unigestion	0	0	0	0	0	14,026	5,638	10,344
Union Bank & Trust Company (Nebraska)	765	774	524	551	465	339	309	309
Union Investment Institutional GmbH	0	0	0	25,000	25,000	40,000	40,000	84,458
Union Investment Privatfonds GmbH	0	0	0	0	0	0	80,000	0
United Fire & Casualty Company	4,500	4,500	4,500	0	0	0	0	0
Universal-Investment-Gesellschaft mbH	6,000	6,000	0	5,400	5,400	5,400	5,400	5,400
Urquijo Gestión, S A , S G I I C , Sociedad Unipersonal	0	0	0	0	0	0	0	0
USA Mutuals Advisors, Inc	0	0	0	0	0	0	0	0
USAA Asset Management Company	82,370	82,370	70,400	0	0	0	0	35,430
USS Investment Management Ltd	0	0	0	0	0	0	0	0
Utah Retirement Systems	70,685	70,985	71,185	72,087	71,347	71,347	71,547	71,547
UTC Fund Services, Inc	0	0	0	0	0	0	0	0
V Wealth Advisors LLC	0	0	0	0	0	0	0	0
Valeo Financial Advisors LLC	5,737	5,499	1,711	700	650	200	1,500	961
Valex Capital AG	0	0	0	0	0	0	0	0
Valley National Advisers Inc	401	363	363	363	363	363	363	363
Value Asset Management GmbH	0	0	0	0	28,000	28,000	28,000	24,000
Van Eck Associates Corporation	77,731	72,818	37,249	27,787	22,812	22,176	25,431	25,113
Van Hulzen Asset Management	0	0	0	0	0	0	0	0
Vanguard Global Advisers LLC	0	102,430	102,430	106,098	106,371	100,394	100,528	92,815
Vanguard Investments Australia Ltd	200,144	195,044	190,698	192,398	195,898	199,991	201,044	319,012
Vantage Consulting Group, Inc	0	0	0	1,136	1,136	2,114	2,477	947
Vantage Investment Advisory Limited	0	0	0	0	0	0	0	0
Vaughan Nelson Investment Management, L P	21,683	21,701	20,463	19,373	19,373	19,260	17,513	14,701
Vector Wealth Management	0	0	0	0	0	0	0	0
Velanne Asset Management Limited	81,322	81,322	0	0	0	0	0	0
Ventura Wealth Management	172	0	0	0	0	0	0	0
Veritable, L P	15,390	15,246	13,540	12,963	13,684	12,645	13,582	0
Verition Fund Management LLC	19,549	33,985	68,803	8,448	9,520	0	0	14,971
Verity Asset Management, Inc	0	5,120	0	0	0	0	0	0
Versant Capital Management, Inc	0	0	0	0	9	0	0	42
Vestcor Inc	12,184	12,184	10,934	10,934	10,934	10,934	6,520	8,051
VG Asset Management SA	0	1,050	1,050	1,050	0	0	0	0
VI Vorsorgeinvest AG	950	3,050	3,050	950	950	950	950	0
Victory Capital Management Inc	203,003	63,752	63,497	5,499	5,386	4,704	4,548	156,688
Vident Investment Advisory, LLC	9,330	4,498	0	6,156	0	0	9,422	89,849
Vigilant Capital Management, LLC	0	0	102	0	0	0	246	0
Violich Capital Management, Inc	0	0	0	0	0	0	0	0
Virginia Retirement System	198,700	169,300	167,500	132,200	155,300	109,800	113,800	113,800
Virtu Americas LLC	0	0	34,413	8,283	26,067	0	20,404	20,404
Virtu Financial BD LLC	0	0	21,720	7,274	15,908	0	16,069	16,069
Virtus Etf Advisers LLC	0	0	0	0	0	0	600	1,366
Virtus Fund Advisers, LLC	0	0	0	0	0	0	0	0
Virtus Investment Advisers, Inc	0	0	1,478	1,478	1,307	1,171	1,207	1,317
Vista Investment Management, LLC	8,879	8,834	8,549	9,404	7,988	0	0	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018

Voloridge Investment Management, LLC	0	0	72,629	0	0	0	58,331	0
Voya Financial Advisors, Inc	0	0	0	0	0	6,290	5,400	0
Voya Investment Management LLC	192,068	189,804	159,851	159,942	220,314	219,093	207,580	206,940
VP Bank (Schweiz) AG	1,150	0	0	0	0	0	0	0
VSR Financial Services, Inc NLE	4,518	4,518	4,518	4,518	4,518	4,518	4,518	4,518
W & W Asset Management GmbH	1,029	1,029	1,029	1,029	1,322	1,849	1,849	1,849
Waddell & Reed Investment Management Company NLE	102,988	0	0	0	0	0	0	0
Walleye Trading, LLC	0	0	61,330	28,592	34,380	77,845	56,007	154,991
Warburg Invest AG	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108
Washington Capital Management, Inc	4,100	5,775	15,550	30,115	30,115	33,615	33,615	33,615
Washington State Investment Board	50,179	50,179	50,179	50,179	50,179	50,179	50,179	0
Washington Trust Bank	725	781	757	1,425	1,425	1,425	1,525	400
Washington Trust Co	0	0	0	0	0	0	0	0
Waters, Parkerson & Co , LLC	3,764	3,764	3,764	0	0	0	0	0
Waverton Investment Management Ltd	20,006	20,006	20,111	19,200	0	0	0	0
We Are One Seven, LLC	0	0	0	0	0	0	143	124
Wealth Management Advisors, LLC	0	0	0	0	0	0	325	50
Wealthbridge Capital Management LLC	0	0	0	0	0	0	0	0
Wealthcare Advisory Partners LLC	0	0	0	0	0	41	41	41
Wealthfront Advisers LLC	7,254	7,324	7,726	7,611	13,329	16,820	16,939	21,185
Wealthspire Advisors LLC	0	0	0	0	0	0	0	0
Wealthspire Advisors, L P NLE	1,359	1,410	1,467	712	3,635	3,829	2,692	2,087
Wealthstreet Investment Advisors LLC	0	0	0	0	0	0	8,200	7,900
WealthTrust-Arizona, LLC	0	0	0	0	0	20	121	12
Weaver Consulting Group, LLC	0	0	0	0	0	0	0	0
Webster Financial Advisors	21,563	22,637	23,239	24,766	23,782	19,264	16,427	17,540
Wedbush Securities, Inc	10,275	10,050	9,823	11,396	11,567	13,579	5,872	13,626
WEDGE Capital Management, L L P	181,795	156,827	134,061	164,015	171,679	209,263	221,691	208,840
Weiss Multi-Strategy Advisers LLC	9	0	8	0	0	0	0	0
Weissborn Capital Partners GmbH	0	0	0	0	0	10,000	0	0
Welch & Forbes LLC	36,392	0	27,847	24,725	24,035	23,530	18,022	10,985
Weld Capital Management LLC	0	0	0	0	0	0	0	0
Wellington Management Company, LLP	870,958	461,999	536,704	62,499	54,062	53,412	46,682	114,840
Wellington Shields Capital Management, LLC	3,900	5,900	3,900	3,900	0	0	0	0
Wells Fargo Advisors	1,143,281	1,262,943	1,424,926	1,422,211	1,111,468	1,043,375	867,136	1,053,029
Wells Fargo Bank, N A	191,349	176,963	185,039	154,878	235,689	244,386	250,258	249,364
Wells Fargo Securities, LLC	0	0	5,732	0	0	1,097	0	0
WesBanco Bank, Inc	4,291	4,291	4,241	4,941	5,041	5,041	5,129	0
Westbourne Investment Advisors, Inc	29,280	31,065	36,135	37,035	36,960	38,220	38,330	37,485
Westpac Banking Corporation	0	0	0	0	31,502	58,660	69,337	104,137
Westport Resources Management, Inc NLE	550	0	0	0	0	0	0	0
Westside Investment Management, Inc	0	0	730	832	691	747	957	892
Westwood Management Corporation	0	12,000	0	0	0	0	0	0
Wetherby Asset Management, Inc	5,522	5,657	5,923	5,923	5,715	0	0	0
WFG Advisors LP NLE	1,182	2,028	1,955	1,628	1,951	1,951	1,951	1,951
WhaleRock Point Partners, LLC	5,500	5,200	6,875	11,025	8,425	8,425	0	0
Wharton Business Group, LLC	59,836	26,436	26,436	26,436	26,436	0	0	0
Wheatland Advisors, Inc NLE	8,104	8,104	8,104	7,530	7,330	7,330	7,231	7,231
White Pine Capital, L L C	13,017	14,482	11,932	12,272	11,712	11,037	9,157	8,307
White Pine Investment Company	62,571	57,633	57,633	58,438	58,698	59,493	81,858	82,188
Whitebox Advisors, L L C	0	0	0	0	0	0	0	5,600

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020
Voloridge Investment Management, LLC	0	0	0	0	0	194,444	473,834	435,144
Voya Financial Advisors, Inc	0	0	0	0	0	0	0	0
Voya Investment Management LLC	187,883	183,390	186,418	181,590	182,920	182,262	180,487	170,759
VP Bank (Schweiz) AG	0	0	0	0	0	0	0	0
VSR Financial Services, Inc NLE	0	0	0	0	0	0	0	0
W & W Asset Management GmbH	2,922	2,922	1,073	871	2,720	2,720	2,720	2,720
Waddell & Reed Investment Management Company NLE	0	0	0	0	0	0	0	0
Walleye Trading, LLC	317,747	24,785	64,497	66,946	52,972	0	0	0
Warburg Invest AG	1,108	1,108	1,108	1,108	518	518	518	1,903
Washington Capital Management, Inc	35,065	34,565	31,565	0	0	0	0	0
Washington State Investment Board	0	0	0	0	0	0	0	0
Washington Trust Bank	400	0	0	0	0	0	0	0
Washington Trust Co	1,000	0	0	0	0	0	0	0
Waters, Parkerson & Co , LLC	0	0	0	0	0	0	0	0
Waverton Investment Management Ltd	0	0	0	0	0	0	0	0
We Are One Seven, LLC	124	0	35	0	0	0	0	0
Wealth Management Advisors, LLC	50	50	50	50	50	50	50	50
Wealthbridge Capital Management LLC	0	0	40	40	0	0	0	0
Wealthcare Advisory Partners LLC	261	221	71	72	0	0	0	0
Wealthfront Advisers LLC	18,218	18,552	0	32,571	39,281	48,482	84,802	192,543
Wealthspire Advisors LLC	0	0	241	0	0	0	0	0
Wealthspire Advisors, L P NLE	2,302	2,466	2,119	2,248	0	0	0	0
Wealthstreet Investment Advisors LLC	6,900	6,700	6,300	0	0	0	0	0
WealthTrust-Arizona, LLC	12	12	27	27	27	27	27	27
Weaver Consulting Group, LLC	0	0	0	808	808	808	808	808
Webster Financial Advisors	17,678	17,215	15,568	16,545	15,108	13,962	3,405	1,089
Wedbush Securities, Inc	13,162	13,164	12,373	11,732	12,977	9,813	9,813	10,113
WEDGE Capital Management, L L P	212,910	158,674	178,919	128,304	113,911	92,655	94,331	95,167
Weiss Multi-Strategy Advisers LLC	0	0	3	0	0	0	0	550,000
Weissborn Capital Partners GmbH	0	0	0	0	0	0	0	0
Welch & Forbes LLC	8,941	8,867	0	0	0	0	0	0
Weld Capital Management LLC	0	0	0	0	0	0	0	44,189
Wellington Management Company, LLP	43,789	13,191	82,294	9,032	385,949	121,980	540,786	14,832
Wellington Shields Capital Management, LLC	0	0	0	0	0	0	0	0
Wells Fargo Advisors	1,132,509	911,336	401,834	588,967	501,125	303,672	197,463	101,991
Wells Fargo Bank, N A	227,376	250,519	250,494	214,426	213,083	244,714	267,212	196,220
Wells Fargo Securities, LLC	48,600	28,113	0	90	0	0	0	837
WesBanco Bank, Inc	4,435	4,435	0	0	0	0	0	0
Westbourne Investment Advisors, Inc	41,455	37,440	29,670	25,670	10,520	0	0	0
Westpac Banking Corporation	107,637	28,800	23,930	72,796	0	0	0	0
Westport Resources Management, Inc NLE	0	0	0	0	0	0	0	0
Westside Investment Management, Inc	874	585	0	0	0	0	0	0
Westwood Management Corporation	0	0	0	0	0	0	0	0
Wetherby Asset Management, Inc	6,109	6,428	0	9,641	10,489	8,695	10,756	14,490
WFG Advisors LP NLE	1,951	1,951	1,951	0	0	0	0	0
WhaleRock Point Partners, LLC	0	0	0	0	0	0	0	0
Wharton Business Group, LLC	0	0	0	0	0	0	0	0
Wheatland Advisors, Inc NLE	7,231	7,232	0	0	0	0	0	0
White Pine Capital, L L C	8,062	8,062	40,030	40,210	40,210	40,098	38,098	48,893
White Pine Investment Company	82,263	81,538	0	0	0	0	0	0
Whitebox Advisors, L L C	9,066	8,313	31,848	23,269	0	0	0	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	91 0%	90 6%	90 4%	92 1%	92 9%	93 1%	93 2%	96 0%
Short Interest	15,806,530	23,025,883	20,429,303	23,261,781	27,207,316	25,548,841	27,671,458	31,978,776
Shares Outstanding	378,534,000	379,423,000	379,429,000	380,370,000	380,437,000	380,934,000	380,943,000	381,448,000
Shares Held by Insiders	1,208,721	1,237,259	1,249,641	822,860	690,007	631,998	619,701	884,372
Shares Held by Institutions	357,832,338	363,492,112	360,371,520	371,120,028	377,906,781	377,963,468	380,399,786	396,086,479
Number of Institutions With Holdings	1,076	1,099	1,128	1,076	1,028	1,027	1,049	984
Quarter-End	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018

Whittier Trust Company	5,934	5,819	5,700	5,700	5,700	190,633	211,405	220,342
Whittier Trust Company of Nevada, Inc	8,363	6,746	5,988	5,360	5,330	34,605	42,053	56,528
Wilbanks, Smith & Thomas Asset Management, LLC	0	0	0	0	0	0	0	0
William Blair & Company, L L C (Research)	61,485	55,215	56,197	57,594	62,299	28,157	24,062	19,520
Williams Jones Wealth Management LLC	10,760	9,710	9,235	5,235	5,235	5,235	5,110	0
Willingdon Wealth Management Inc NLE	0	0	0	0	0	0	121	0
Willis Investment Counsel Inc	101,023	103,803	104,343	107,815	102,025	136,340	169,910	170,950
Wilmington Funds Management Corporation	10,840	10,840	10,840	10,840	10,840	9,040	4,740	6,240
Wilmington Trust Investment Advisors, Inc	15,255	15,390	15,307	12,416	12,733	12,194	12,029	11,212
Wilmington Trust Investment Management LLC	8,134	8,034	8,480	4,981	4,056	3,489	3,397	6,790
Wilmington Trust, National Association	12,283	13,534	13,781	13,395	8,060	7,465	6,896	9,172
Winch Financial	0	0	4,689	0	685	0	0	0
Winslow, Evans & Crocker, Inc	850	850	850	850	850	1,200	1,200	1,150
Winthrop Partners - WNY, LLC	0	0	0	0	0	0	0	1,546
Winton Capital Management Ltd	0	0	0	0	1,007	3,224	2,830	4,174
Wittenberg Investment Management Inc	0	0	34,075	34,075	34,305	33,805	18,875	17,675
Wolverine Asset Management, LLC	0	0	0	0	0	402	132	562
Wolverine Trading, LLC	0	0	31,702	52,069	57,993	37,483	0	75,092
Woodbury Financial Services, Inc	25	0	0	0	0	0	0	0
Woodley Farra Manion Portfolio Management, Inc	0	0	0	0	0	0	0	0
Woodmont Investment Counsel LLC	0	350	0	0	0	0	0	0
Woodstock Corporation	22,064	21,687	21,137	19,422	14,822	14,862	13,337	13,008
World Asset Management, Inc	154,177	155,948	155,547	160,292	152,498	154,255	147,919	128,570
WrapManager Inc	0	0	0	0	0	9,342	8,453	9,737
Xact Kapitalforvaltning AB	0	24,841	27,928	29,323	31,735	32,407	36,148	40,946
Xponance, Inc	0	0	0	0	0	1,492	234	204
Yellowstone Partners LLC NLE	3,800	0	0	0	0	0	0	0
Yuanta Securities Investment Trust Co , Ltd	0	0	0	0	0	0	0	0
Zacks Investment Management, Inc	3,171	127,709	173,740	137,338	92,902	0	0	39,177
Zantke & Cie Asset Management GmbH	0	0	0	0	0	0	0	0
Zeke Capital Advisors, LLC	0	0	8,125	9,700	0	0	0	0
ZEST SA	0	0	3,000	0	0	0	0	0
Ziegler Capital Management, LLC	0	340	0	420	0	0	0	0
Zions Capital Advisors, Inc	2,382	2,345	2,345	2,283	2,250	2,169	0	0
Zions Direct, Inc	3,016	3,016	0	0	0	0	0	0
Zürcher Kantonalbank (Asset Management)	78,754	110,635	155,608	116,128	86,506	95,529	98,620	97,702
Zurich Insurance Group	0	110,774	48,901	63,096	80,151	69,161	62,025	0

Exhibit 9

Apache Corporation

Quarterly Institutional Holdings

Source: Refinitiv Eikon

Available Shares Held by Institutions	94 4%	93 6%	95 1%	94 9%	94 0%	94 6%	95 0%	88 8%
Short Interest	31,633,416	29,080,414	30,852,682	27,023,390	26,331,663	23,612,183	27,510,938	33,418,337
Shares Outstanding	382,154,000	382,486,000	379,544,000	375,406,000	375,921,000	375,959,000	376,036,000	377,316,000
Shares Held by Insiders	925,881	885,775	929,430	1,134,894	1,074,617	961,400	970,497	1,190,868
Shares Held by Institutions	389,888,067	384,388,658	389,262,250	380,960,658	377,034,578	376,956,735	382,648,117	363,559,381
Number of Institutions With Holdings	991	989	927	929	882	830	811	789
Quarter-End	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020

Whittier Trust Company	204,239	38,342	24,269	17,222	13,841	12,554	3,219	3,237
Whittier Trust Company of Nevada, Inc	61,337	18,792	12,805	3,363	2,504	2,474	1,739	1,739
Wilbanks, Smith & Thomas Asset Management, LLC	0	707	0	0	0	0	0	0
William Blair & Company, L L C (Research)	16,520	10,639	14,167	13,529	12,982	14,484	0	0
Williams Jones Wealth Management LLC	0	0	0	0	0	0	0	0
Willingdon Wealth Management Inc _NLE	0	0	0	0	0	0	0	0
Willis Investment Counsel Inc	172,840	172,210	109,630	175,255	175,840	178,185	124,505	185,373
Wilmington Funds Management Corporation	5,340	4,440	4,440	4,440	6,940	6,940	4,640	8,140
Wilmington Trust Investment Advisors, Inc	9,797	9,347	8,262	4,062	2,501	2,535	2,613	2,483
Wilmington Trust Investment Management LLC	4,715	4,540	4,143	4,256	4,222	3,774	2,843	10,696
Wilmington Trust, National Association	8,053	9,757	7,682	6,467	6,256	5,003	4,698	1,699
Winch Financial	0	0	0	0	0	0	0	0
Winslow, Evans & Crocker, Inc	1,150	900	0	0	0	0	0	0
Winthrop Partners - WNY, LLC	1,346	1,346	1,246	1,246	1,331	85	85	85
Winton Capital Management Ltd	2,583	2,609	1,701	1,692	1,671	1,341	240	311
Wittenberg Investment Management Inc	17,675	15,775	15,775	15,775	15,775	15,775	11,275	90,475
Wolverine Asset Management, LLC	562	12	12	12	12	12	12	0
Wolverine Trading, LLC	75,092	59,563	60,259	47,864	45,320	39,945	100,389	36,074
Woodbury Financial Services, Inc	0	0	0	0	0	0	0	0
Woodley Farra Manion Portfolio Management, Inc	0	0	0	0	0	0	335	335
Woodmont Investment Counsel LLC	0	0	0	0	0	0	0	0
Woodstock Corporation	13,008	13,008	12,858	12,858	12,648	12,405	0	42,854
World Asset Management, Inc	116,136	98,169	124,913	126,144	127,773	127,731	102,528	94,533
WrapManager Inc	9,678	9,782	0	0	0	0	0	0
Xact Kapitalforvaltning AB	42,193	38,145	38,145	0	0	0	0	0
Xponance, Inc	0	0	0	0	0	0	0	0
Yellowstone Partners LLC _NLE	0	0	0	0	0	0	0	0
Yuanta Securities Investment Trust Co , Ltd	0	0	0	4,209	1,476	2,310	1,299	0
Zacks Investment Management, Inc	78,890	64,107	22,783	0	0	0	0	0
Zantke & Cie Asset Management GmbH	12,000	12,000	12,000	12,000	0	0	0	0
Zeke Capital Advisors, LLC	0	0	29,462	40,337	47,187	32,557	73,754	0
ZEST SA	0	0	0	0	0	0	0	0
Ziegler Capital Management, LLC	0	0	0	0	0	0	0	0
Zions Capital Advisors, Inc	0	2,170	0	0	0	1,194	3,375	1,509
Zions Direct, Inc	0	0	0	0	0	0	0	0
Zürcher Kantonalbank (Asset Management)	116,709	106,682	118,255	105,552	96,287	83,614	84,399	111,221
Zurich Insurance Group	0	0	3,881	3,881	0	0	0	0

Exhibit 10A**Apache Corporation****Bid Ask Spreads on the NYSE**

Source: Bloomberg

	APA	NYSE Sample	APA	NYSE Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.01	\$0.03	0.03%	0.13%
Median	\$0.01	\$0.03	0.03%	0.11%

Apache's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
9/7/2016	\$55.12	\$55.13	\$0.01	0.02%
9/8/2016	\$59.04	\$59.05	\$0.01	0.02%
9/9/2016	\$59.40	\$59.41	\$0.01	0.02%
9/12/2016	\$59.91	\$59.92	\$0.01	0.02%
9/13/2016	\$57.51	\$57.52	\$0.01	0.02%
9/14/2016	\$56.75	\$56.76	\$0.01	0.02%
9/15/2016	\$58.70	\$58.71	\$0.01	0.02%
9/16/2016	\$58.54	\$58.55	\$0.01	0.02%
9/19/2016	\$57.87	\$57.88	\$0.01	0.02%
9/20/2016	\$57.48	\$57.49	\$0.01	0.02%
9/21/2016	\$60.88	\$60.89	\$0.01	0.02%
9/22/2016	\$60.99	\$61.00	\$0.01	0.02%
9/23/2016	\$60.01	\$60.02	\$0.01	0.02%
9/26/2016	\$59.95	\$59.96	\$0.01	0.02%
9/27/2016	\$59.57	\$59.58	\$0.01	0.02%
9/28/2016	\$63.68	\$63.69	\$0.01	0.02%
9/29/2016	\$63.72	\$63.73	\$0.01	0.02%
9/30/2016	\$63.86	\$63.87	\$0.01	0.02%
10/3/2016	\$63.95	\$63.96	\$0.01	0.02%
10/4/2016	\$63.79	\$63.80	\$0.01	0.02%
10/5/2016	\$64.64	\$64.65	\$0.01	0.02%
10/6/2016	\$64.09	\$64.10	\$0.01	0.02%
10/7/2016	\$63.34	\$63.35	\$0.01	0.02%
10/10/2016	\$64.15	\$64.16	\$0.01	0.02%
10/11/2016	\$62.88	\$62.89	\$0.01	0.02%
10/12/2016	\$62.71	\$62.72	\$0.01	0.02%
10/13/2016	\$62.05	\$62.07	\$0.02	0.03%
10/14/2016	\$61.77	\$61.78	\$0.01	0.02%
10/17/2016	\$61.87	\$61.88	\$0.01	0.02%
10/18/2016	\$62.83	\$62.84	\$0.01	0.02%
10/19/2016	\$64.32	\$64.33	\$0.01	0.02%
10/20/2016	\$63.48	\$63.49	\$0.01	0.02%
10/21/2016	\$62.19	\$62.20	\$0.01	0.02%
10/24/2016	\$61.56	\$61.57	\$0.01	0.02%
10/25/2016	\$60.56	\$60.57	\$0.01	0.02%

Exhibit 10A**Apache Corporation****Bid Ask Spreads on the NYSE**

Source: Bloomberg

	APA	NYSE Sample	APA	NYSE Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.01	\$0.03	0.03%	0.13%
Median	\$0.01	\$0.03	0.03%	0.11%

Apache's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
10/26/2016	\$61.67	\$61.68	\$0.01	0.02%
10/27/2016	\$61.71	\$61.72	\$0.01	0.02%
10/28/2016	\$60.72	\$60.73	\$0.01	0.02%
10/31/2016	\$59.46	\$59.47	\$0.01	0.02%
11/1/2016	\$59.53	\$59.54	\$0.01	0.02%
11/2/2016	\$59.46	\$59.47	\$0.01	0.02%
11/3/2016	\$55.50	\$55.52	\$0.02	0.04%
11/4/2016	\$56.14	\$56.15	\$0.01	0.02%
11/7/2016	\$57.45	\$57.47	\$0.02	0.03%
11/8/2016	\$56.92	\$56.93	\$0.01	0.02%
11/9/2016	\$58.01	\$58.02	\$0.01	0.02%
11/10/2016	\$58.32	\$58.33	\$0.01	0.02%
11/11/2016	\$57.72	\$57.74	\$0.02	0.03%
11/14/2016	\$58.93	\$58.94	\$0.01	0.02%
11/15/2016	\$63.39	\$63.40	\$0.01	0.02%
11/16/2016	\$62.45	\$62.46	\$0.01	0.02%
11/17/2016	\$61.39	\$61.40	\$0.01	0.02%
11/18/2016	\$62.07	\$62.08	\$0.01	0.02%
11/21/2016	\$63.26	\$63.27	\$0.01	0.02%
11/22/2016	\$62.46	\$62.47	\$0.01	0.02%
11/23/2016	\$63.64	\$63.65	\$0.01	0.02%
11/25/2016	\$62.83	\$62.84	\$0.01	0.02%
11/28/2016	\$61.35	\$61.36	\$0.01	0.02%
11/29/2016	\$60.73	\$60.74	\$0.01	0.02%
11/30/2016	\$65.95	\$65.97	\$0.02	0.03%
12/1/2016	\$65.14	\$65.15	\$0.01	0.02%
12/2/2016	\$65.11	\$65.12	\$0.01	0.02%
12/5/2016	\$66.41	\$66.42	\$0.01	0.02%
12/6/2016	\$66.34	\$66.35	\$0.01	0.02%
12/7/2016	\$66.36	\$66.37	\$0.01	0.02%
12/8/2016	\$66.54	\$66.55	\$0.01	0.02%
12/9/2016	\$66.54	\$66.56	\$0.02	0.03%
12/12/2016	\$66.79	\$66.82	\$0.03	0.04%
12/13/2016	\$67.34	\$67.35	\$0.01	0.01%
12/14/2016	\$65.74	\$65.75	\$0.01	0.02%

Exhibit 10A**Apache Corporation****Bid Ask Spreads on the NYSE**

Source: Bloomberg

	APA	NYSE Sample	APA	NYSE Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.01	\$0.03	0.03%	0.13%
Median	\$0.01	\$0.03	0.03%	0.11%

Apache's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
12/15/2016	\$66.74	\$66.75	\$0.01	0.01%
12/16/2016	\$66.38	\$66.39	\$0.01	0.02%
12/19/2016	\$66.70	\$66.71	\$0.01	0.01%
12/20/2016	\$66.74	\$66.75	\$0.01	0.01%
12/21/2016	\$66.63	\$66.64	\$0.01	0.02%
12/22/2016	\$66.73	\$66.74	\$0.01	0.01%
12/23/2016	\$66.39	\$66.40	\$0.01	0.02%
12/27/2016	\$66.33	\$66.34	\$0.01	0.02%
12/28/2016	\$64.58	\$64.59	\$0.01	0.02%
12/29/2016	\$63.86	\$63.87	\$0.01	0.02%
12/30/2016	\$63.48	\$63.49	\$0.01	0.02%
1/3/2017	\$63.76	\$63.77	\$0.01	0.02%
1/4/2017	\$63.58	\$63.59	\$0.01	0.02%
1/5/2017	\$63.25	\$63.26	\$0.01	0.02%
1/6/2017	\$63.13	\$63.14	\$0.01	0.02%
1/9/2017	\$62.36	\$62.37	\$0.01	0.02%
1/10/2017	\$62.85	\$62.86	\$0.01	0.02%
1/11/2017	\$63.76	\$63.77	\$0.01	0.02%
1/12/2017	\$63.01	\$63.02	\$0.01	0.02%
1/13/2017	\$62.78	\$62.80	\$0.02	0.03%
1/17/2017	\$63.10	\$63.11	\$0.01	0.02%
1/18/2017	\$62.91	\$62.92	\$0.01	0.02%
1/19/2017	\$62.21	\$62.22	\$0.01	0.02%
1/20/2017	\$61.81	\$61.82	\$0.01	0.02%
1/23/2017	\$60.77	\$60.78	\$0.01	0.02%
1/24/2017	\$60.95	\$60.96	\$0.01	0.02%
1/25/2017	\$61.42	\$61.43	\$0.01	0.02%
1/26/2017	\$62.54	\$62.55	\$0.01	0.02%
1/27/2017	\$62.07	\$62.08	\$0.01	0.02%
1/30/2017	\$59.95	\$59.96	\$0.01	0.02%
1/31/2017	\$59.82	\$59.83	\$0.01	0.02%
2/1/2017	\$57.78	\$57.79	\$0.01	0.02%
2/2/2017	\$59.07	\$59.09	\$0.02	0.03%
2/3/2017	\$59.63	\$59.64	\$0.01	0.02%
2/6/2017	\$57.87	\$57.88	\$0.01	0.02%

Exhibit 10A**Apache Corporation****Bid Ask Spreads on the NYSE**

Source: Bloomberg

	APA	NYSE Sample	APA	NYSE Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.01	\$0.03	0.03%	0.13%
Median	\$0.01	\$0.03	0.03%	0.11%

Apache's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
2/7/2017	\$57.01	\$57.02	\$0.01	0.02%
2/8/2017	\$56.92	\$56.93	\$0.01	0.02%
2/9/2017	\$56.91	\$56.92	\$0.01	0.02%
2/10/2017	\$57.37	\$57.38	\$0.01	0.02%
2/13/2017	\$57.18	\$57.19	\$0.01	0.02%
2/14/2017	\$55.49	\$55.50	\$0.01	0.02%
2/15/2017	\$55.58	\$55.59	\$0.01	0.02%
2/16/2017	\$55.25	\$55.26	\$0.01	0.02%
2/17/2017	\$55.42	\$55.43	\$0.01	0.02%
2/21/2017	\$55.88	\$55.89	\$0.01	0.02%
2/22/2017	\$54.91	\$54.93	\$0.02	0.04%
2/23/2017	\$52.98	\$52.99	\$0.01	0.02%
2/24/2017	\$53.41	\$53.42	\$0.01	0.02%
2/27/2017	\$52.93	\$52.95	\$0.02	0.04%
2/28/2017	\$52.59	\$52.61	\$0.02	0.04%
3/1/2017	\$52.93	\$52.94	\$0.01	0.02%
3/2/2017	\$51.91	\$51.92	\$0.01	0.02%
3/3/2017	\$52.08	\$52.09	\$0.01	0.02%
3/6/2017	\$52.18	\$52.19	\$0.01	0.02%
3/7/2017	\$51.26	\$51.27	\$0.01	0.02%
3/8/2017	\$49.42	\$49.43	\$0.01	0.02%
3/9/2017	\$50.62	\$50.63	\$0.01	0.02%
3/10/2017	\$50.23	\$50.24	\$0.01	0.02%
3/13/2017	\$50.16	\$50.18	\$0.02	0.04%
3/14/2017	\$50.33	\$50.34	\$0.01	0.02%
3/15/2017	\$51.07	\$51.08	\$0.01	0.02%
3/16/2017	\$51.08	\$51.09	\$0.01	0.02%
3/17/2017	\$51.21	\$51.22	\$0.01	0.02%
3/20/2017	\$50.92	\$50.93	\$0.01	0.02%
3/21/2017	\$50.31	\$50.32	\$0.01	0.02%
3/22/2017	\$50.52	\$50.54	\$0.02	0.04%
3/23/2017	\$50.09	\$50.10	\$0.01	0.02%
3/24/2017	\$50.23	\$50.24	\$0.01	0.02%
3/27/2017	\$49.71	\$49.72	\$0.01	0.02%
3/28/2017	\$51.22	\$51.24	\$0.02	0.04%

Exhibit 10A**Apache Corporation****Bid Ask Spreads on the NYSE**

Source: Bloomberg

	APA	NYSE Sample	APA	NYSE Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.01	\$0.03	0.03%	0.13%
Median	\$0.01	\$0.03	0.03%	0.11%

Apache's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
3/29/2017	\$53.18	\$53.19	\$0.01	0.02%
3/30/2017	\$52.09	\$52.10	\$0.01	0.02%
3/31/2017	\$51.38	\$51.39	\$0.01	0.02%
4/3/2017	\$51.04	\$51.05	\$0.01	0.02%
4/4/2017	\$51.89	\$51.90	\$0.01	0.02%
4/5/2017	\$51.69	\$51.70	\$0.01	0.02%
4/6/2017	\$52.95	\$52.96	\$0.01	0.02%
4/7/2017	\$52.60	\$52.61	\$0.01	0.02%
4/10/2017	\$53.99	\$54.00	\$0.01	0.02%
4/11/2017	\$53.87	\$53.88	\$0.01	0.02%
4/12/2017	\$53.80	\$53.81	\$0.01	0.02%
4/13/2017	\$52.36	\$52.37	\$0.01	0.02%
4/17/2017	\$52.49	\$52.50	\$0.01	0.02%
4/18/2017	\$50.45	\$50.46	\$0.01	0.02%
4/19/2017	\$49.18	\$49.19	\$0.01	0.02%
4/20/2017	\$49.02	\$49.03	\$0.01	0.02%
4/21/2017	\$49.02	\$49.04	\$0.02	0.04%
4/24/2017	\$48.74	\$48.75	\$0.01	0.02%
4/25/2017	\$50.24	\$50.25	\$0.01	0.02%
4/26/2017	\$50.00	\$50.01	\$0.01	0.02%
4/27/2017	\$48.33	\$48.34	\$0.01	0.02%
4/28/2017	\$48.64	\$48.65	\$0.01	0.02%
5/1/2017	\$48.79	\$48.80	\$0.01	0.02%
5/2/2017	\$48.47	\$48.48	\$0.01	0.02%
5/3/2017	\$48.80	\$48.83	\$0.03	0.06%
5/4/2017	\$47.92	\$47.93	\$0.01	0.02%
5/5/2017	\$49.29	\$49.30	\$0.01	0.02%
5/8/2017	\$50.24	\$50.25	\$0.01	0.02%
5/9/2017	\$50.44	\$50.45	\$0.01	0.02%
5/10/2017	\$51.20	\$51.21	\$0.01	0.02%
5/11/2017	\$51.05	\$51.06	\$0.01	0.02%
5/12/2017	\$51.44	\$51.45	\$0.01	0.02%
5/15/2017	\$50.96	\$50.97	\$0.01	0.02%
5/16/2017	\$50.96	\$50.97	\$0.01	0.02%
5/17/2017	\$50.20	\$50.21	\$0.01	0.02%

Exhibit 10A**Apache Corporation****Bid Ask Spreads on the NYSE**

Source: Bloomberg

	APA	NYSE Sample	APA	NYSE Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.01	\$0.03	0.03%	0.13%
Median	\$0.01	\$0.03	0.03%	0.11%

Apache's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
5/18/2017	\$49.91	\$49.92	\$0.01	0.02%
5/19/2017	\$51.15	\$51.16	\$0.01	0.02%
5/22/2017	\$50.02	\$50.03	\$0.01	0.02%
5/23/2017	\$50.00	\$50.01	\$0.01	0.02%
5/24/2017	\$49.87	\$49.88	\$0.01	0.02%
5/25/2017	\$47.71	\$47.72	\$0.01	0.02%
5/26/2017	\$48.17	\$48.18	\$0.01	0.02%
5/30/2017	\$47.56	\$47.57	\$0.01	0.02%
5/31/2017	\$46.76	\$46.77	\$0.01	0.02%
6/1/2017	\$47.25	\$47.27	\$0.02	0.04%
6/2/2017	\$46.97	\$46.98	\$0.01	0.02%
6/5/2017	\$46.74	\$46.75	\$0.01	0.02%
6/6/2017	\$48.03	\$48.04	\$0.01	0.02%
6/7/2017	\$46.79	\$46.80	\$0.01	0.02%
6/8/2017	\$47.00	\$47.01	\$0.01	0.02%
6/9/2017	\$48.33	\$48.34	\$0.01	0.02%
6/12/2017	\$48.41	\$48.42	\$0.01	0.02%
6/13/2017	\$49.22	\$49.23	\$0.01	0.02%
6/14/2017	\$47.72	\$47.73	\$0.01	0.02%
6/15/2017	\$47.80	\$47.81	\$0.01	0.02%
6/16/2017	\$49.54	\$49.55	\$0.01	0.02%
6/19/2017	\$49.81	\$49.82	\$0.01	0.02%
6/20/2017	\$47.71	\$47.72	\$0.01	0.02%
6/21/2017	\$45.66	\$45.67	\$0.01	0.02%
6/22/2017	\$45.63	\$45.64	\$0.01	0.02%
6/23/2017	\$46.07	\$46.08	\$0.01	0.02%
6/26/2017	\$46.20	\$46.21	\$0.01	0.02%
6/27/2017	\$46.19	\$46.20	\$0.01	0.02%
6/28/2017	\$47.13	\$47.14	\$0.01	0.02%
6/29/2017	\$47.46	\$47.47	\$0.01	0.02%
6/30/2017	\$47.93	\$47.94	\$0.01	0.02%
7/3/2017	\$49.30	\$49.32	\$0.02	0.04%
7/5/2017	\$47.65	\$47.66	\$0.01	0.02%
7/6/2017	\$45.77	\$45.78	\$0.01	0.02%
7/7/2017	\$45.11	\$45.12	\$0.01	0.02%

Exhibit 10A**Apache Corporation****Bid Ask Spreads on the NYSE**

Source: Bloomberg

	APA	NYSE Sample	APA	NYSE Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.01	\$0.03	0.03%	0.13%
Median	\$0.01	\$0.03	0.03%	0.11%

Apache's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
7/10/2017	\$47.12	\$47.13	\$0.01	0.02%
7/11/2017	\$47.18	\$47.19	\$0.01	0.02%
7/12/2017	\$47.57	\$47.58	\$0.01	0.02%
7/13/2017	\$48.23	\$48.24	\$0.01	0.02%
7/14/2017	\$48.55	\$48.56	\$0.01	0.02%
7/17/2017	\$48.68	\$48.69	\$0.01	0.02%
7/18/2017	\$47.73	\$47.74	\$0.01	0.02%
7/19/2017	\$49.84	\$49.85	\$0.01	0.02%
7/20/2017	\$49.35	\$49.36	\$0.01	0.02%
7/21/2017	\$48.41	\$48.42	\$0.01	0.02%
7/24/2017	\$47.98	\$47.99	\$0.01	0.02%
7/25/2017	\$48.86	\$48.87	\$0.01	0.02%
7/26/2017	\$48.84	\$48.85	\$0.01	0.02%
7/27/2017	\$50.20	\$50.21	\$0.01	0.02%
7/28/2017	\$49.97	\$49.98	\$0.01	0.02%
7/31/2017	\$49.48	\$49.49	\$0.01	0.02%
8/1/2017	\$48.66	\$48.67	\$0.01	0.02%
8/2/2017	\$47.88	\$47.90	\$0.02	0.04%
8/3/2017	\$44.08	\$44.09	\$0.01	0.02%
8/4/2017	\$45.19	\$45.20	\$0.01	0.02%
8/7/2017	\$44.36	\$44.37	\$0.01	0.02%
8/8/2017	\$44.09	\$44.10	\$0.01	0.02%
8/9/2017	\$43.57	\$43.58	\$0.01	0.02%
8/10/2017	\$42.60	\$42.61	\$0.01	0.02%
8/11/2017	\$42.38	\$42.39	\$0.01	0.02%
8/14/2017	\$41.56	\$41.57	\$0.01	0.02%
8/15/2017	\$41.54	\$41.55	\$0.01	0.02%
8/16/2017	\$40.62	\$40.63	\$0.01	0.02%
8/17/2017	\$39.92	\$39.93	\$0.01	0.03%
8/18/2017	\$40.31	\$40.32	\$0.01	0.02%
8/21/2017	\$39.51	\$39.52	\$0.01	0.03%
8/22/2017	\$39.86	\$39.87	\$0.01	0.03%
8/23/2017	\$40.25	\$40.26	\$0.01	0.02%
8/24/2017	\$40.02	\$40.03	\$0.01	0.02%
8/25/2017	\$40.06	\$40.07	\$0.01	0.02%

Exhibit 10A**Apache Corporation****Bid Ask Spreads on the NYSE**

Source: Bloomberg

	APA	NYSE Sample	APA	NYSE Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.01	\$0.03	0.03%	0.13%
Median	\$0.01	\$0.03	0.03%	0.11%

Apache's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
8/28/2017	\$39.35	\$39.36	\$0.01	0.03%
8/29/2017	\$38.86	\$38.87	\$0.01	0.03%
8/30/2017	\$38.37	\$38.38	\$0.01	0.03%
8/31/2017	\$38.84	\$38.85	\$0.01	0.03%
9/1/2017	\$39.47	\$39.49	\$0.02	0.05%
9/5/2017	\$39.42	\$39.43	\$0.01	0.03%
9/6/2017	\$40.14	\$40.15	\$0.01	0.02%
9/7/2017	\$40.74	\$40.75	\$0.01	0.02%
9/8/2017	\$39.30	\$39.31	\$0.01	0.03%
9/11/2017	\$39.75	\$39.76	\$0.01	0.03%
9/12/2017	\$40.51	\$40.52	\$0.01	0.02%
9/13/2017	\$42.33	\$42.34	\$0.01	0.02%
9/14/2017	\$42.22	\$42.23	\$0.01	0.02%
9/15/2017	\$42.52	\$42.53	\$0.01	0.02%
9/18/2017	\$42.29	\$42.30	\$0.01	0.02%
9/19/2017	\$41.74	\$41.75	\$0.01	0.02%
9/20/2017	\$43.04	\$43.05	\$0.01	0.02%
9/21/2017	\$43.36	\$43.37	\$0.01	0.02%
9/22/2017	\$43.55	\$43.56	\$0.01	0.02%
9/25/2017	\$45.05	\$45.06	\$0.01	0.02%
9/26/2017	\$45.96	\$45.97	\$0.01	0.02%
9/27/2017	\$46.25	\$46.26	\$0.01	0.02%
9/28/2017	\$45.79	\$45.80	\$0.01	0.02%
9/29/2017	\$45.79	\$45.80	\$0.01	0.02%
10/2/2017	\$45.73	\$45.74	\$0.01	0.02%
10/3/2017	\$45.42	\$45.43	\$0.01	0.02%
10/4/2017	\$45.12	\$45.13	\$0.01	0.02%
10/5/2017	\$45.82	\$45.84	\$0.02	0.04%
10/6/2017	\$45.16	\$45.17	\$0.01	0.02%
10/9/2017	\$45.85	\$45.86	\$0.01	0.02%
10/10/2017	\$42.46	\$42.47	\$0.01	0.02%
10/11/2017	\$41.95	\$41.96	\$0.01	0.02%
10/12/2017	\$41.40	\$41.41	\$0.01	0.02%
10/13/2017	\$41.59	\$41.60	\$0.01	0.02%
10/16/2017	\$42.72	\$42.73	\$0.01	0.02%

Exhibit 10A**Apache Corporation****Bid Ask Spreads on the NYSE**

Source: Bloomberg

	APA	NYSE Sample	APA	NYSE Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.01	\$0.03	0.03%	0.13%
Median	\$0.01	\$0.03	0.03%	0.11%

Apache's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
10/17/2017	\$42.76	\$42.77	\$0.01	0.02%
10/18/2017	\$42.64	\$42.65	\$0.01	0.02%
10/19/2017	\$42.14	\$42.15	\$0.01	0.02%
10/20/2017	\$41.53	\$41.54	\$0.01	0.02%
10/23/2017	\$40.29	\$40.30	\$0.01	0.02%
10/24/2017	\$40.14	\$40.15	\$0.01	0.02%
10/25/2017	\$39.50	\$39.51	\$0.01	0.03%
10/26/2017	\$39.58	\$39.59	\$0.01	0.03%
10/27/2017	\$40.72	\$40.73	\$0.01	0.02%
10/30/2017	\$40.81	\$40.82	\$0.01	0.02%
10/31/2017	\$41.37	\$41.38	\$0.01	0.02%
11/1/2017	\$42.22	\$42.23	\$0.01	0.02%
11/2/2017	\$41.68	\$41.69	\$0.01	0.02%
11/3/2017	\$42.75	\$42.77	\$0.02	0.05%
11/6/2017	\$45.73	\$45.74	\$0.01	0.02%
11/7/2017	\$45.19	\$45.20	\$0.01	0.02%
11/8/2017	\$44.53	\$44.54	\$0.01	0.02%
11/9/2017	\$45.24	\$45.25	\$0.01	0.02%
11/10/2017	\$44.13	\$44.14	\$0.01	0.02%
11/13/2017	\$43.48	\$43.49	\$0.01	0.02%
11/14/2017	\$41.88	\$41.89	\$0.01	0.02%
11/15/2017	\$41.03	\$41.04	\$0.01	0.02%
11/16/2017	\$40.48	\$40.49	\$0.01	0.02%
11/17/2017	\$41.17	\$41.18	\$0.01	0.02%
11/20/2017	\$41.05	\$41.06	\$0.01	0.02%
11/21/2017	\$41.44	\$41.45	\$0.01	0.02%
11/22/2017	\$41.54	\$41.55	\$0.01	0.02%
11/24/2017	\$41.13	\$41.14	\$0.01	0.02%
11/27/2017	\$39.85	\$39.86	\$0.01	0.03%
11/28/2017	\$40.26	\$40.27	\$0.01	0.02%
11/29/2017	\$40.73	\$40.74	\$0.01	0.02%
11/30/2017	\$41.82	\$41.83	\$0.01	0.02%
12/1/2017	\$44.21	\$44.22	\$0.01	0.02%
12/4/2017	\$43.21	\$43.22	\$0.01	0.02%
12/5/2017	\$42.14	\$42.15	\$0.01	0.02%

Exhibit 10A**Apache Corporation****Bid Ask Spreads on the NYSE**

Source: Bloomberg

	APA	NYSE Sample	APA	NYSE Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.01	\$0.03	0.03%	0.13%
Median	\$0.01	\$0.03	0.03%	0.11%

Apache's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
12/6/2017	\$40.56	\$40.57	\$0.01	0.02%
12/7/2017	\$40.63	\$40.64	\$0.01	0.02%
12/8/2017	\$40.69	\$40.70	\$0.01	0.02%
12/11/2017	\$40.19	\$40.20	\$0.01	0.02%
12/12/2017	\$39.72	\$39.73	\$0.01	0.03%
12/13/2017	\$39.80	\$39.82	\$0.02	0.05%
12/14/2017	\$39.40	\$39.41	\$0.01	0.03%
12/15/2017	\$39.46	\$39.47	\$0.01	0.03%
12/18/2017	\$39.92	\$39.93	\$0.01	0.03%
12/19/2017	\$40.24	\$40.25	\$0.01	0.02%
12/20/2017	\$41.27	\$41.28	\$0.01	0.02%
12/21/2017	\$43.30	\$43.31	\$0.01	0.02%
12/22/2017	\$42.92	\$42.93	\$0.01	0.02%
12/26/2017	\$43.34	\$43.36	\$0.02	0.05%
12/27/2017	\$42.88	\$42.89	\$0.01	0.02%
12/28/2017	\$42.86	\$42.87	\$0.01	0.02%
12/29/2017	\$42.23	\$42.24	\$0.01	0.02%
1/2/2018	\$44.30	\$44.31	\$0.01	0.02%
1/3/2018	\$45.32	\$45.33	\$0.01	0.02%
1/4/2018	\$46.81	\$46.82	\$0.01	0.02%
1/5/2018	\$46.38	\$46.39	\$0.01	0.02%
1/8/2018	\$45.92	\$45.93	\$0.01	0.02%
1/9/2018	\$44.54	\$44.55	\$0.01	0.02%
1/10/2018	\$43.98	\$43.99	\$0.01	0.02%
1/11/2018	\$45.99	\$46.00	\$0.01	0.02%
1/12/2018	\$47.15	\$47.16	\$0.01	0.02%
1/16/2018	\$46.27	\$46.28	\$0.01	0.02%
1/17/2018	\$46.51	\$46.52	\$0.01	0.02%
1/18/2018	\$46.69	\$46.70	\$0.01	0.02%
1/19/2018	\$46.04	\$46.05	\$0.01	0.02%
1/22/2018	\$47.66	\$47.67	\$0.01	0.02%
1/23/2018	\$47.75	\$47.76	\$0.01	0.02%
1/24/2018	\$48.12	\$48.13	\$0.01	0.02%
1/25/2018	\$47.45	\$47.46	\$0.01	0.02%
1/26/2018	\$48.07	\$48.08	\$0.01	0.02%

Exhibit 10A**Apache Corporation****Bid Ask Spreads on the NYSE**

Source: Bloomberg

	APA	NYSE Sample	APA	NYSE Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.01	\$0.03	0.03%	0.13%
Median	\$0.01	\$0.03	0.03%	0.11%

Apache's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
1/29/2018	\$46.64	\$46.65	\$0.01	0.02%
1/30/2018	\$44.57	\$44.58	\$0.01	0.02%
1/31/2018	\$44.87	\$44.88	\$0.01	0.02%
2/1/2018	\$44.69	\$44.70	\$0.01	0.02%
2/2/2018	\$42.82	\$42.83	\$0.01	0.02%
2/5/2018	\$40.93	\$40.94	\$0.01	0.02%
2/6/2018	\$41.12	\$41.13	\$0.01	0.02%
2/7/2018	\$39.54	\$39.55	\$0.01	0.03%
2/8/2018	\$37.73	\$37.74	\$0.01	0.03%
2/9/2018	\$37.22	\$37.23	\$0.01	0.03%
2/12/2018	\$38.09	\$38.11	\$0.02	0.05%
2/13/2018	\$37.69	\$37.70	\$0.01	0.03%
2/14/2018	\$38.20	\$38.21	\$0.01	0.03%
2/15/2018	\$38.08	\$38.09	\$0.01	0.03%
2/16/2018	\$38.10	\$38.11	\$0.01	0.03%
2/20/2018	\$38.30	\$38.30	\$0.00	0.00%
2/21/2018	\$37.20	\$37.21	\$0.01	0.03%
2/22/2018	\$34.84	\$34.85	\$0.01	0.03%
2/23/2018	\$36.12	\$36.13	\$0.01	0.03%
2/26/2018	\$35.96	\$35.97	\$0.01	0.03%
2/27/2018	\$34.80	\$34.81	\$0.01	0.03%
2/28/2018	\$34.15	\$34.16	\$0.01	0.03%
3/1/2018	\$34.26	\$34.27	\$0.01	0.03%
3/2/2018	\$34.78	\$34.79	\$0.01	0.03%
3/5/2018	\$35.20	\$35.21	\$0.01	0.03%
3/6/2018	\$35.35	\$35.36	\$0.01	0.03%
3/7/2018	\$34.66	\$34.67	\$0.01	0.03%
3/8/2018	\$34.96	\$34.97	\$0.01	0.03%
3/9/2018	\$35.31	\$35.32	\$0.01	0.03%
3/12/2018	\$35.40	\$35.41	\$0.01	0.03%
3/13/2018	\$35.44	\$35.45	\$0.01	0.03%
3/14/2018	\$35.64	\$35.65	\$0.01	0.03%
3/15/2018	\$35.34	\$35.35	\$0.01	0.03%
3/16/2018	\$36.13	\$36.14	\$0.01	0.03%
3/19/2018	\$35.56	\$35.57	\$0.01	0.03%

Exhibit 10A**Apache Corporation****Bid Ask Spreads on the NYSE**

Source: Bloomberg

	APA	NYSE Sample	APA	NYSE Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.01	\$0.03	0.03%	0.13%
Median	\$0.01	\$0.03	0.03%	0.11%

Apache's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
3/20/2018	\$36.25	\$36.26	\$0.01	0.03%
3/21/2018	\$38.09	\$38.10	\$0.01	0.03%
3/22/2018	\$37.28	\$37.29	\$0.01	0.03%
3/23/2018	\$37.01	\$37.02	\$0.01	0.03%
3/26/2018	\$37.27	\$37.28	\$0.01	0.03%
3/27/2018	\$37.46	\$37.48	\$0.02	0.05%
3/28/2018	\$37.34	\$37.35	\$0.01	0.03%
3/29/2018	\$38.46	\$38.47	\$0.01	0.03%
4/2/2018	\$37.90	\$37.91	\$0.01	0.03%
4/3/2018	\$38.00	\$38.01	\$0.01	0.03%
4/4/2018	\$38.19	\$38.20	\$0.01	0.03%
4/5/2018	\$38.75	\$38.76	\$0.01	0.03%
4/6/2018	\$38.34	\$38.35	\$0.01	0.03%
4/9/2018	\$38.43	\$38.44	\$0.01	0.03%
4/10/2018	\$39.26	\$39.27	\$0.01	0.03%
4/11/2018	\$39.63	\$39.64	\$0.01	0.03%
4/12/2018	\$39.38	\$39.39	\$0.01	0.03%
4/13/2018	\$40.60	\$40.61	\$0.01	0.02%
4/16/2018	\$40.78	\$40.79	\$0.01	0.02%
4/17/2018	\$41.34	\$41.35	\$0.01	0.02%
4/18/2018	\$42.83	\$42.84	\$0.01	0.02%
4/19/2018	\$42.04	\$42.05	\$0.01	0.02%
4/20/2018	\$41.45	\$41.46	\$0.01	0.02%
4/23/2018	\$41.52	\$41.53	\$0.01	0.02%
4/24/2018	\$40.64	\$40.65	\$0.01	0.02%
4/25/2018	\$40.99	\$41.00	\$0.01	0.02%
4/26/2018	\$40.87	\$40.88	\$0.01	0.02%
4/27/2018	\$40.19	\$40.20	\$0.01	0.02%
4/30/2018	\$40.94	\$40.95	\$0.01	0.02%
5/1/2018	\$40.44	\$40.45	\$0.01	0.02%
5/2/2018	\$41.03	\$41.04	\$0.01	0.02%
5/3/2018	\$38.53	\$38.54	\$0.01	0.03%
5/4/2018	\$39.50	\$39.51	\$0.01	0.03%
5/7/2018	\$39.46	\$39.47	\$0.01	0.03%
5/8/2018	\$40.12	\$40.13	\$0.01	0.02%

Exhibit 10A**Apache Corporation****Bid Ask Spreads on the NYSE**

Source: Bloomberg

	APA	NYSE Sample	APA	NYSE Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.01	\$0.03	0.03%	0.13%
Median	\$0.01	\$0.03	0.03%	0.11%

Apache's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
5/9/2018	\$41.24	\$41.25	\$0.01	0.02%
5/10/2018	\$41.64	\$41.65	\$0.01	0.02%
5/11/2018	\$41.42	\$41.43	\$0.01	0.02%
5/14/2018	\$42.31	\$42.32	\$0.01	0.02%
5/15/2018	\$42.51	\$42.52	\$0.01	0.02%
5/16/2018	\$42.66	\$42.67	\$0.01	0.02%
5/17/2018	\$44.01	\$44.02	\$0.01	0.02%
5/18/2018	\$43.90	\$43.91	\$0.01	0.02%
5/21/2018	\$44.26	\$44.27	\$0.01	0.02%
5/22/2018	\$43.13	\$43.14	\$0.01	0.02%
5/23/2018	\$42.56	\$42.57	\$0.01	0.02%
5/24/2018	\$41.25	\$41.26	\$0.01	0.02%
5/25/2018	\$39.27	\$39.28	\$0.01	0.03%
5/29/2018	\$38.99	\$39.00	\$0.01	0.03%
5/30/2018	\$40.70	\$40.71	\$0.01	0.02%
5/31/2018	\$40.00	\$40.01	\$0.01	0.02%
6/1/2018	\$38.96	\$38.97	\$0.01	0.03%
6/4/2018	\$39.17	\$39.18	\$0.01	0.03%
6/5/2018	\$39.25	\$39.26	\$0.01	0.03%
6/6/2018	\$39.58	\$39.59	\$0.01	0.03%
6/7/2018	\$41.74	\$41.75	\$0.01	0.02%
6/8/2018	\$42.24	\$42.25	\$0.01	0.02%
6/11/2018	\$44.59	\$44.60	\$0.01	0.02%
6/12/2018	\$42.75	\$42.76	\$0.01	0.02%
6/13/2018	\$43.31	\$43.32	\$0.01	0.02%
6/14/2018	\$42.88	\$42.89	\$0.01	0.02%
6/15/2018	\$41.62	\$41.63	\$0.01	0.02%
6/18/2018	\$42.83	\$42.84	\$0.01	0.02%
6/19/2018	\$43.27	\$43.28	\$0.01	0.02%
6/20/2018	\$45.65	\$45.67	\$0.02	0.04%
6/21/2018	\$44.36	\$44.37	\$0.01	0.02%
6/22/2018	\$44.75	\$44.77	\$0.02	0.04%
6/25/2018	\$43.13	\$43.14	\$0.01	0.02%
6/26/2018	\$44.16	\$44.17	\$0.01	0.02%
6/27/2018	\$45.88	\$45.89	\$0.01	0.02%

Exhibit 10A**Apache Corporation****Bid Ask Spreads on the NYSE**

Source: Bloomberg

	APA	NYSE Sample	APA	NYSE Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.01	\$0.03	0.03%	0.13%
Median	\$0.01	\$0.03	0.03%	0.11%

Apache's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
6/28/2018	\$45.93	\$45.94	\$0.01	0.02%
6/29/2018	\$46.74	\$46.75	\$0.01	0.02%
7/2/2018	\$44.68	\$44.69	\$0.01	0.02%
7/3/2018	\$45.80	\$45.81	\$0.01	0.02%
7/5/2018	\$46.33	\$46.33	\$0.00	0.00%
7/6/2018	\$46.91	\$46.92	\$0.01	0.02%
7/9/2018	\$48.39	\$48.40	\$0.01	0.02%
7/10/2018	\$48.60	\$48.61	\$0.01	0.02%
7/11/2018	\$47.67	\$47.68	\$0.01	0.02%
7/12/2018	\$47.07	\$47.08	\$0.01	0.02%
7/13/2018	\$47.43	\$47.44	\$0.01	0.02%
7/16/2018	\$45.99	\$46.00	\$0.01	0.02%
7/17/2018	\$45.25	\$45.26	\$0.01	0.02%
7/18/2018	\$44.45	\$44.46	\$0.01	0.02%
7/19/2018	\$44.55	\$44.57	\$0.02	0.04%
7/20/2018	\$44.39	\$44.40	\$0.01	0.02%
7/23/2018	\$44.34	\$44.35	\$0.01	0.02%
7/24/2018	\$45.04	\$45.05	\$0.01	0.02%
7/25/2018	\$45.69	\$45.70	\$0.01	0.02%
7/26/2018	\$45.71	\$45.72	\$0.01	0.02%
7/27/2018	\$45.00	\$45.01	\$0.01	0.02%
7/30/2018	\$46.05	\$46.06	\$0.01	0.02%
7/31/2018	\$46.00	\$46.01	\$0.01	0.02%
8/1/2018	\$44.92	\$44.93	\$0.01	0.02%
8/2/2018	\$44.41	\$44.42	\$0.01	0.02%
8/3/2018	\$45.14	\$45.15	\$0.01	0.02%
8/6/2018	\$45.63	\$45.64	\$0.01	0.02%
8/7/2018	\$46.38	\$46.39	\$0.01	0.02%
8/8/2018	\$46.12	\$46.13	\$0.01	0.02%
8/9/2018	\$43.29	\$43.30	\$0.01	0.02%
8/10/2018	\$44.17	\$44.18	\$0.01	0.02%
8/13/2018	\$43.68	\$43.69	\$0.01	0.02%
8/14/2018	\$43.90	\$43.90	\$0.00	0.00%
8/15/2018	\$41.97	\$41.98	\$0.01	0.02%
8/16/2018	\$42.17	\$42.18	\$0.01	0.02%

Exhibit 10A**Apache Corporation****Bid Ask Spreads on the NYSE**

Source: Bloomberg

	APA	NYSE Sample	APA	NYSE Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.01	\$0.03	0.03%	0.13%
Median	\$0.01	\$0.03	0.03%	0.11%

Apache's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
8/17/2018	\$41.99	\$42.00	\$0.01	0.02%
8/20/2018	\$42.02	\$42.03	\$0.01	0.02%
8/21/2018	\$42.66	\$42.67	\$0.01	0.02%
8/22/2018	\$43.28	\$43.29	\$0.01	0.02%
8/23/2018	\$42.85	\$42.86	\$0.01	0.02%
8/24/2018	\$43.48	\$43.49	\$0.01	0.02%
8/27/2018	\$43.76	\$43.77	\$0.01	0.02%
8/28/2018	\$42.76	\$42.76	\$0.00	0.00%
8/29/2018	\$43.72	\$43.72	\$0.00	0.00%
8/30/2018	\$44.38	\$44.38	\$0.00	0.00%
8/31/2018	\$43.82	\$43.82	\$0.00	0.00%
9/4/2018	\$43.17	\$43.18	\$0.01	0.02%
9/5/2018	\$43.91	\$43.92	\$0.01	0.02%
9/6/2018	\$42.66	\$42.67	\$0.01	0.02%
9/7/2018	\$42.88	\$42.89	\$0.01	0.02%
9/10/2018	\$43.31	\$43.32	\$0.01	0.02%
9/11/2018	\$44.08	\$44.09	\$0.01	0.02%
9/12/2018	\$45.13	\$45.14	\$0.01	0.02%
9/13/2018	\$44.53	\$44.54	\$0.01	0.02%
9/14/2018	\$45.45	\$45.46	\$0.01	0.02%
9/17/2018	\$45.78	\$45.79	\$0.01	0.02%
9/18/2018	\$46.26	\$46.27	\$0.01	0.02%
9/19/2018	\$46.80	\$46.81	\$0.01	0.02%
9/20/2018	\$45.66	\$45.66	\$0.00	0.00%
9/21/2018	\$45.95	\$45.96	\$0.01	0.02%
9/24/2018	\$47.49	\$47.50	\$0.01	0.02%
9/25/2018	\$47.78	\$47.79	\$0.01	0.02%
9/26/2018	\$47.23	\$47.24	\$0.01	0.02%
9/27/2018	\$47.42	\$47.43	\$0.01	0.02%
9/28/2018	\$47.67	\$47.68	\$0.01	0.02%
10/1/2018	\$48.36	\$48.37	\$0.01	0.02%
10/2/2018	\$48.55	\$48.56	\$0.01	0.02%
10/3/2018	\$48.88	\$48.89	\$0.01	0.02%
10/4/2018	\$48.48	\$48.49	\$0.01	0.02%
10/5/2018	\$47.97	\$47.98	\$0.01	0.02%

Exhibit 10A**Apache Corporation****Bid Ask Spreads on the NYSE**

Source: Bloomberg

	APA	NYSE Sample	APA	NYSE Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.01	\$0.03	0.03%	0.13%
Median	\$0.01	\$0.03	0.03%	0.11%

Apache's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
10/8/2018	\$47.99	\$48.00	\$0.01	0.02%
10/9/2018	\$49.29	\$49.31	\$0.02	0.04%
10/10/2018	\$46.40	\$46.41	\$0.01	0.02%
10/11/2018	\$44.62	\$44.63	\$0.01	0.02%
10/12/2018	\$45.13	\$45.15	\$0.02	0.04%
10/15/2018	\$44.56	\$44.57	\$0.01	0.02%
10/16/2018	\$44.50	\$44.51	\$0.01	0.02%
10/17/2018	\$43.27	\$43.28	\$0.01	0.02%
10/18/2018	\$42.32	\$42.33	\$0.01	0.02%
10/19/2018	\$42.09	\$42.10	\$0.01	0.02%
10/22/2018	\$41.29	\$41.30	\$0.01	0.02%
10/23/2018	\$39.77	\$39.78	\$0.01	0.03%
10/24/2018	\$37.94	\$37.95	\$0.01	0.03%
10/25/2018	\$38.14	\$38.15	\$0.01	0.03%
10/26/2018	\$37.39	\$37.40	\$0.01	0.03%
10/29/2018	\$36.17	\$36.18	\$0.01	0.03%
10/30/2018	\$37.44	\$37.45	\$0.01	0.03%
10/31/2018	\$37.82	\$37.83	\$0.01	0.03%
11/1/2018	\$36.37	\$36.38	\$0.01	0.03%
11/2/2018	\$35.94	\$35.95	\$0.01	0.03%
11/5/2018	\$37.57	\$37.58	\$0.01	0.03%
11/6/2018	\$37.32	\$37.33	\$0.01	0.03%
11/7/2018	\$37.79	\$37.80	\$0.01	0.03%
11/8/2018	\$36.02	\$36.03	\$0.01	0.03%
11/9/2018	\$37.08	\$37.09	\$0.01	0.03%
11/12/2018	\$36.05	\$36.06	\$0.01	0.03%
11/13/2018	\$35.24	\$35.25	\$0.01	0.03%
11/14/2018	\$36.12	\$36.14	\$0.02	0.06%
11/15/2018	\$36.99	\$37.00	\$0.01	0.03%
11/16/2018	\$37.42	\$37.44	\$0.02	0.05%
11/19/2018	\$36.52	\$36.53	\$0.01	0.03%
11/20/2018	\$34.67	\$34.68	\$0.01	0.03%
11/21/2018	\$36.02	\$36.03	\$0.01	0.03%
11/23/2018	\$34.86	\$34.87	\$0.01	0.03%
11/26/2018	\$35.36	\$35.37	\$0.01	0.03%

Exhibit 10A**Apache Corporation****Bid Ask Spreads on the NYSE**

Source: Bloomberg

	APA	NYSE Sample	APA	NYSE Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.01	\$0.03	0.03%	0.13%
Median	\$0.01	\$0.03	0.03%	0.11%

Apache's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
11/27/2018	\$35.08	\$35.09	\$0.01	0.03%
11/28/2018	\$35.26	\$35.27	\$0.01	0.03%
11/29/2018	\$35.53	\$35.54	\$0.01	0.03%
11/30/2018	\$35.13	\$35.14	\$0.01	0.03%
12/3/2018	\$36.48	\$36.49	\$0.01	0.03%
12/4/2018	\$35.04	\$35.05	\$0.01	0.03%
12/6/2018	\$33.89	\$33.90	\$0.01	0.03%
12/7/2018	\$33.01	\$33.02	\$0.01	0.03%
12/10/2018	\$31.25	\$31.26	\$0.01	0.03%
12/11/2018	\$30.56	\$30.57	\$0.01	0.03%
12/12/2018	\$31.33	\$31.34	\$0.01	0.03%
12/13/2018	\$31.30	\$31.31	\$0.01	0.03%
12/14/2018	\$30.23	\$30.24	\$0.01	0.03%
12/17/2018	\$30.15	\$30.16	\$0.01	0.03%
12/18/2018	\$29.24	\$29.25	\$0.01	0.03%
12/19/2018	\$28.76	\$28.77	\$0.01	0.03%
12/20/2018	\$26.99	\$27.00	\$0.01	0.04%
12/21/2018	\$26.56	\$26.57	\$0.01	0.04%
12/24/2018	\$25.40	\$25.41	\$0.01	0.04%
12/26/2018	\$27.04	\$27.05	\$0.01	0.04%
12/27/2018	\$26.72	\$26.73	\$0.01	0.04%
12/28/2018	\$26.33	\$26.34	\$0.01	0.04%
12/31/2018	\$26.24	\$26.25	\$0.01	0.04%
1/2/2019	\$27.10	\$27.11	\$0.01	0.04%
1/3/2019	\$27.17	\$27.18	\$0.01	0.04%
1/4/2019	\$28.32	\$28.33	\$0.01	0.04%
1/7/2019	\$28.93	\$28.94	\$0.01	0.03%
1/8/2019	\$29.34	\$29.35	\$0.01	0.03%
1/9/2019	\$30.87	\$30.88	\$0.01	0.03%
1/10/2019	\$30.95	\$30.96	\$0.01	0.03%
1/11/2019	\$31.09	\$31.10	\$0.01	0.03%
1/14/2019	\$31.56	\$31.57	\$0.01	0.03%
1/15/2019	\$31.75	\$31.76	\$0.01	0.03%
1/16/2019	\$31.21	\$31.22	\$0.01	0.03%
1/17/2019	\$31.68	\$31.69	\$0.01	0.03%

Exhibit 10A**Apache Corporation****Bid Ask Spreads on the NYSE**

Source: Bloomberg

	APA	NYSE Sample	APA	NYSE Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.01	\$0.03	0.03%	0.13%
Median	\$0.01	\$0.03	0.03%	0.11%

Apache's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
1/18/2019	\$32.09	\$32.10	\$0.01	0.03%
1/22/2019	\$31.51	\$31.52	\$0.01	0.03%
1/23/2019	\$30.98	\$30.99	\$0.01	0.03%
1/24/2019	\$31.84	\$31.85	\$0.01	0.03%
1/25/2019	\$32.07	\$32.08	\$0.01	0.03%
1/28/2019	\$32.31	\$32.32	\$0.01	0.03%
1/29/2019	\$33.09	\$33.10	\$0.01	0.03%
1/30/2019	\$33.40	\$33.42	\$0.02	0.06%
1/31/2019	\$32.81	\$32.82	\$0.01	0.03%
2/1/2019	\$32.63	\$32.65	\$0.02	0.06%
2/4/2019	\$33.12	\$33.13	\$0.01	0.03%
2/5/2019	\$32.82	\$32.83	\$0.01	0.03%
2/6/2019	\$31.84	\$31.85	\$0.01	0.03%
2/7/2019	\$30.52	\$30.53	\$0.01	0.03%
2/8/2019	\$29.87	\$29.88	\$0.01	0.03%
2/11/2019	\$30.34	\$30.35	\$0.01	0.03%
2/12/2019	\$31.07	\$31.08	\$0.01	0.03%
2/13/2019	\$32.27	\$32.28	\$0.01	0.03%
2/14/2019	\$32.67	\$32.68	\$0.01	0.03%
2/15/2019	\$33.29	\$33.30	\$0.01	0.03%
2/19/2019	\$33.30	\$33.31	\$0.01	0.03%
2/20/2019	\$33.80	\$33.81	\$0.01	0.03%
2/21/2019	\$33.36	\$33.37	\$0.01	0.03%
2/22/2019	\$33.48	\$33.49	\$0.01	0.03%
2/25/2019	\$33.45	\$33.46	\$0.01	0.03%
2/26/2019	\$33.10	\$33.11	\$0.01	0.03%
2/27/2019	\$33.57	\$33.58	\$0.01	0.03%
2/28/2019	\$33.19	\$33.20	\$0.01	0.03%
3/1/2019	\$33.98	\$33.99	\$0.01	0.03%
3/4/2019	\$33.65	\$33.66	\$0.01	0.03%
3/5/2019	\$33.73	\$33.73	\$0.00	0.00%
3/6/2019	\$32.72	\$32.73	\$0.01	0.03%
3/7/2019	\$33.26	\$33.27	\$0.01	0.03%
3/8/2019	\$31.94	\$31.95	\$0.01	0.03%
3/11/2019	\$32.75	\$32.76	\$0.01	0.03%

Exhibit 10A**Apache Corporation****Bid Ask Spreads on the NYSE**

Source: Bloomberg

	APA	NYSE Sample	APA	NYSE Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.01	\$0.03	0.03%	0.13%
Median	\$0.01	\$0.03	0.03%	0.11%

Apache's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
3/12/2019	\$33.67	\$33.68	\$0.01	0.03%
3/13/2019	\$34.31	\$34.32	\$0.01	0.03%
3/14/2019	\$34.27	\$34.28	\$0.01	0.03%
3/15/2019	\$34.45	\$34.46	\$0.01	0.03%
3/18/2019	\$35.00	\$35.01	\$0.01	0.03%
3/19/2019	\$34.49	\$34.50	\$0.01	0.03%
3/20/2019	\$35.29	\$35.30	\$0.01	0.03%
3/21/2019	\$36.07	\$36.08	\$0.01	0.03%
3/22/2019	\$34.80	\$34.81	\$0.01	0.03%
3/25/2019	\$34.92	\$34.93	\$0.01	0.03%
3/26/2019	\$35.65	\$35.66	\$0.01	0.03%
3/27/2019	\$35.01	\$35.02	\$0.01	0.03%
3/28/2019	\$35.08	\$35.09	\$0.01	0.03%
3/29/2019	\$34.67	\$34.68	\$0.01	0.03%
4/1/2019	\$34.96	\$34.97	\$0.01	0.03%
4/2/2019	\$34.28	\$34.29	\$0.01	0.03%
4/3/2019	\$33.06	\$33.07	\$0.01	0.03%
4/4/2019	\$33.37	\$33.39	\$0.02	0.06%
4/5/2019	\$35.55	\$35.56	\$0.01	0.03%
4/8/2019	\$35.57	\$35.58	\$0.01	0.03%
4/9/2019	\$34.88	\$34.89	\$0.01	0.03%
4/10/2019	\$35.72	\$35.73	\$0.01	0.03%
4/11/2019	\$35.63	\$35.64	\$0.01	0.03%
4/12/2019	\$36.51	\$36.52	\$0.01	0.03%
4/15/2019	\$35.94	\$35.95	\$0.01	0.03%
4/16/2019	\$36.55	\$36.56	\$0.01	0.03%
4/17/2019	\$36.84	\$36.85	\$0.01	0.03%
4/18/2019	\$35.86	\$35.87	\$0.01	0.03%
4/22/2019	\$37.10	\$37.11	\$0.01	0.03%
4/23/2019	\$36.41	\$36.42	\$0.01	0.03%
4/24/2019	\$35.47	\$35.48	\$0.01	0.03%
4/25/2019	\$34.03	\$34.05	\$0.02	0.06%
4/26/2019	\$33.05	\$33.06	\$0.01	0.03%
4/29/2019	\$33.20	\$33.21	\$0.01	0.03%
4/30/2019	\$32.88	\$32.89	\$0.01	0.03%

Exhibit 10A**Apache Corporation****Bid Ask Spreads on the NYSE**

Source: Bloomberg

	APA	NYSE Sample	APA	NYSE Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.01	\$0.03	0.03%	0.13%
Median	\$0.01	\$0.03	0.03%	0.11%

Apache's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
5/1/2019	\$31.73	\$31.74	\$0.01	0.03%
5/2/2019	\$29.78	\$29.79	\$0.01	0.03%
5/3/2019	\$30.59	\$30.60	\$0.01	0.03%
5/6/2019	\$30.79	\$30.79	\$0.00	0.00%
5/7/2019	\$30.50	\$30.51	\$0.01	0.03%
5/8/2019	\$30.61	\$30.62	\$0.01	0.03%
5/9/2019	\$31.04	\$31.05	\$0.01	0.03%
5/10/2019	\$31.23	\$31.24	\$0.01	0.03%
5/13/2019	\$30.13	\$30.14	\$0.01	0.03%
5/14/2019	\$31.00	\$31.01	\$0.01	0.03%
5/15/2019	\$31.17	\$31.18	\$0.01	0.03%
5/16/2019	\$31.22	\$31.23	\$0.01	0.03%
5/17/2019	\$30.41	\$30.42	\$0.01	0.03%
5/20/2019	\$29.92	\$29.93	\$0.01	0.03%
5/21/2019	\$30.82	\$30.83	\$0.01	0.03%
5/22/2019	\$29.50	\$29.51	\$0.01	0.03%
5/23/2019	\$27.65	\$27.66	\$0.01	0.04%
5/24/2019	\$27.32	\$27.33	\$0.01	0.04%
5/28/2019	\$26.95	\$26.96	\$0.01	0.04%
5/29/2019	\$26.64	\$26.65	\$0.01	0.04%
5/30/2019	\$26.18	\$26.19	\$0.01	0.04%
5/31/2019	\$26.06	\$26.07	\$0.01	0.04%
6/3/2019	\$26.88	\$26.89	\$0.01	0.04%
6/4/2019	\$28.34	\$28.35	\$0.01	0.04%
6/5/2019	\$28.04	\$28.05	\$0.01	0.04%
6/6/2019	\$28.82	\$28.84	\$0.02	0.07%
6/7/2019	\$28.94	\$28.95	\$0.01	0.03%
6/10/2019	\$28.88	\$28.89	\$0.01	0.03%
6/11/2019	\$28.85	\$28.86	\$0.01	0.03%
6/12/2019	\$28.01	\$28.02	\$0.01	0.04%
6/13/2019	\$28.36	\$28.37	\$0.01	0.04%
6/14/2019	\$27.48	\$27.49	\$0.01	0.04%
6/17/2019	\$27.83	\$27.84	\$0.01	0.04%
6/18/2019	\$28.64	\$28.65	\$0.01	0.03%
6/19/2019	\$28.62	\$28.63	\$0.01	0.03%

Exhibit 10A**Apache Corporation****Bid Ask Spreads on the NYSE**

Source: Bloomberg

	APA	NYSE Sample	APA	NYSE Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.01	\$0.03	0.03%	0.13%
Median	\$0.01	\$0.03	0.03%	0.11%

Apache's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
6/20/2019	\$29.52	\$29.53	\$0.01	0.03%
6/21/2019	\$29.64	\$29.65	\$0.01	0.03%
6/24/2019	\$29.06	\$29.07	\$0.01	0.03%
6/25/2019	\$28.21	\$28.22	\$0.01	0.04%
6/26/2019	\$29.02	\$29.03	\$0.01	0.03%
6/27/2019	\$28.64	\$28.65	\$0.01	0.03%
6/28/2019	\$28.96	\$28.97	\$0.01	0.03%
7/1/2019	\$29.20	\$29.21	\$0.01	0.03%
7/2/2019	\$27.38	\$27.39	\$0.01	0.04%
7/3/2019	\$27.28	\$27.29	\$0.01	0.04%
7/5/2019	\$27.18	\$27.19	\$0.01	0.04%
7/8/2019	\$26.51	\$26.51	\$0.00	0.00%
7/9/2019	\$26.94	\$26.95	\$0.01	0.04%
7/10/2019	\$27.46	\$27.47	\$0.01	0.04%
7/11/2019	\$26.73	\$26.74	\$0.01	0.04%
7/12/2019	\$26.91	\$26.92	\$0.01	0.04%
7/15/2019	\$26.35	\$26.36	\$0.01	0.04%
7/16/2019	\$25.23	\$25.24	\$0.01	0.04%
7/17/2019	\$24.47	\$24.48	\$0.01	0.04%
7/18/2019	\$23.53	\$23.54	\$0.01	0.04%
7/19/2019	\$24.02	\$24.03	\$0.01	0.04%
7/22/2019	\$23.84	\$23.86	\$0.02	0.08%
7/23/2019	\$24.29	\$24.30	\$0.01	0.04%
7/24/2019	\$24.79	\$24.80	\$0.01	0.04%
7/25/2019	\$24.17	\$24.18	\$0.01	0.04%
7/26/2019	\$23.92	\$23.93	\$0.01	0.04%
7/29/2019	\$23.33	\$23.34	\$0.01	0.04%
7/30/2019	\$24.09	\$24.10	\$0.01	0.04%
7/31/2019	\$24.38	\$24.40	\$0.02	0.08%
8/1/2019	\$24.12	\$24.13	\$0.01	0.04%
8/2/2019	\$24.20	\$24.21	\$0.01	0.04%
8/5/2019	\$23.26	\$23.27	\$0.01	0.04%
8/6/2019	\$22.93	\$22.94	\$0.01	0.04%
8/7/2019	\$21.98	\$21.99	\$0.01	0.05%
8/8/2019	\$22.44	\$22.45	\$0.01	0.04%

Exhibit 10A**Apache Corporation****Bid Ask Spreads on the NYSE**

Source: Bloomberg

	APA	NYSE Sample	APA	NYSE Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.01	\$0.03	0.03%	0.13%
Median	\$0.01	\$0.03	0.03%	0.11%

Apache's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
8/9/2019	\$21.96	\$21.97	\$0.01	0.05%
8/12/2019	\$21.56	\$21.57	\$0.01	0.05%
8/13/2019	\$21.91	\$21.92	\$0.01	0.05%
8/14/2019	\$20.09	\$20.10	\$0.01	0.05%
8/15/2019	\$19.92	\$19.93	\$0.01	0.05%
8/16/2019	\$20.84	\$20.85	\$0.01	0.05%
8/19/2019	\$21.89	\$21.90	\$0.01	0.05%
8/20/2019	\$21.75	\$21.76	\$0.01	0.05%
8/21/2019	\$21.72	\$21.73	\$0.01	0.05%
8/22/2019	\$21.45	\$21.46	\$0.01	0.05%
8/23/2019	\$20.69	\$20.70	\$0.01	0.05%
8/26/2019	\$21.00	\$21.01	\$0.01	0.05%
8/27/2019	\$20.94	\$20.95	\$0.01	0.05%
8/28/2019	\$21.62	\$21.63	\$0.01	0.05%
8/29/2019	\$22.03	\$22.04	\$0.01	0.05%
8/30/2019	\$21.55	\$21.56	\$0.01	0.05%
9/3/2019	\$21.40	\$21.41	\$0.01	0.05%
9/4/2019	\$22.03	\$22.04	\$0.01	0.05%
9/5/2019	\$22.67	\$22.68	\$0.01	0.04%
9/6/2019	\$22.33	\$22.34	\$0.01	0.04%
9/9/2019	\$23.64	\$23.65	\$0.01	0.04%
9/10/2019	\$23.69	\$23.70	\$0.01	0.04%
9/11/2019	\$23.98	\$23.99	\$0.01	0.04%
9/12/2019	\$23.84	\$23.85	\$0.01	0.04%
9/13/2019	\$24.33	\$24.34	\$0.01	0.04%
9/16/2019	\$28.45	\$28.46	\$0.01	0.04%
9/17/2019	\$26.01	\$26.02	\$0.01	0.04%
9/18/2019	\$25.43	\$25.44	\$0.01	0.04%
9/19/2019	\$25.75	\$25.76	\$0.01	0.04%
9/20/2019	\$25.80	\$25.82	\$0.02	0.08%
9/23/2019	\$26.17	\$26.18	\$0.01	0.04%
9/24/2019	\$25.37	\$25.38	\$0.01	0.04%
9/25/2019	\$25.52	\$25.53	\$0.01	0.04%
9/26/2019	\$25.27	\$25.28	\$0.01	0.04%
9/27/2019	\$25.70	\$25.71	\$0.01	0.04%

Exhibit 10A**Apache Corporation****Bid Ask Spreads on the NYSE**

Source: Bloomberg

	APA	NYSE Sample	APA	NYSE Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.01	\$0.03	0.03%	0.13%
Median	\$0.01	\$0.03	0.03%	0.11%

Apache's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
9/30/2019	\$25.58	\$25.59	\$0.01	0.04%
10/1/2019	\$24.26	\$24.27	\$0.01	0.04%
10/2/2019	\$23.20	\$23.21	\$0.01	0.04%
10/3/2019	\$23.36	\$23.37	\$0.01	0.04%
10/4/2019	\$22.15	\$22.16	\$0.01	0.05%
10/7/2019	\$21.39	\$21.40	\$0.01	0.05%
10/8/2019	\$20.25	\$20.26	\$0.01	0.05%
10/9/2019	\$20.52	\$20.53	\$0.01	0.05%
10/10/2019	\$20.42	\$20.43	\$0.01	0.05%
10/11/2019	\$21.42	\$21.43	\$0.01	0.05%
10/14/2019	\$21.93	\$21.94	\$0.01	0.05%
10/15/2019	\$22.18	\$22.19	\$0.01	0.05%
10/16/2019	\$21.76	\$21.77	\$0.01	0.05%
10/17/2019	\$22.12	\$22.13	\$0.01	0.05%
10/18/2019	\$22.43	\$22.44	\$0.01	0.04%
10/21/2019	\$22.76	\$22.77	\$0.01	0.04%
10/22/2019	\$22.94	\$22.95	\$0.01	0.04%
10/23/2019	\$23.53	\$23.54	\$0.01	0.04%
10/24/2019	\$23.21	\$23.22	\$0.01	0.04%
10/25/2019	\$22.06	\$22.07	\$0.01	0.05%
10/28/2019	\$21.72	\$21.73	\$0.01	0.05%
10/29/2019	\$22.05	\$22.06	\$0.01	0.05%
10/30/2019	\$21.38	\$21.39	\$0.01	0.05%
10/31/2019	\$21.66	\$21.67	\$0.01	0.05%
11/1/2019	\$23.81	\$23.83	\$0.02	0.08%
11/4/2019	\$24.51	\$24.52	\$0.01	0.04%
11/5/2019	\$23.96	\$23.97	\$0.01	0.04%
11/6/2019	\$23.63	\$23.64	\$0.01	0.04%
11/7/2019	\$24.09	\$24.10	\$0.01	0.04%
11/8/2019	\$24.43	\$24.44	\$0.01	0.04%
11/11/2019	\$23.84	\$23.85	\$0.01	0.04%
11/12/2019	\$23.79	\$23.80	\$0.01	0.04%
11/13/2019	\$23.30	\$23.31	\$0.01	0.04%
11/14/2019	\$23.43	\$23.44	\$0.01	0.04%
11/15/2019	\$23.90	\$23.91	\$0.01	0.04%

Exhibit 10A**Apache Corporation****Bid Ask Spreads on the NYSE**

Source: Bloomberg

	APA	NYSE Sample	APA	NYSE Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.01	\$0.03	0.03%	0.13%
Median	\$0.01	\$0.03	0.03%	0.11%

Apache's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
11/18/2019	\$22.97	\$22.98	\$0.01	0.04%
11/19/2019	\$22.37	\$22.38	\$0.01	0.04%
11/20/2019	\$22.87	\$22.88	\$0.01	0.04%
11/21/2019	\$23.22	\$23.23	\$0.01	0.04%
11/22/2019	\$23.40	\$23.41	\$0.01	0.04%
11/25/2019	\$23.55	\$23.56	\$0.01	0.04%
11/26/2019	\$22.88	\$22.89	\$0.01	0.04%
11/27/2019	\$23.21	\$23.22	\$0.01	0.04%
11/29/2019	\$22.30	\$22.31	\$0.01	0.04%
12/2/2019	\$19.53	\$19.54	\$0.01	0.05%
12/3/2019	\$18.37	\$18.38	\$0.01	0.05%
12/4/2019	\$18.69	\$18.70	\$0.01	0.05%
12/5/2019	\$18.58	\$18.59	\$0.01	0.05%
12/6/2019	\$19.99	\$20.00	\$0.01	0.05%
12/9/2019	\$20.63	\$20.64	\$0.01	0.05%
12/10/2019	\$20.93	\$20.94	\$0.01	0.05%
12/11/2019	\$21.27	\$21.28	\$0.01	0.05%
12/12/2019	\$22.05	\$22.07	\$0.02	0.09%
12/13/2019	\$21.34	\$21.35	\$0.01	0.05%
12/16/2019	\$22.07	\$22.08	\$0.01	0.05%
12/17/2019	\$22.46	\$22.47	\$0.01	0.04%
12/18/2019	\$22.74	\$22.75	\$0.01	0.04%
12/19/2019	\$22.70	\$22.71	\$0.01	0.04%
12/20/2019	\$22.61	\$22.62	\$0.01	0.04%
12/23/2019	\$26.56	\$26.57	\$0.01	0.04%
12/24/2019	\$26.17	\$26.18	\$0.01	0.04%
12/26/2019	\$26.27	\$26.28	\$0.01	0.04%
12/27/2019	\$26.12	\$26.13	\$0.01	0.04%
12/30/2019	\$25.50	\$25.52	\$0.02	0.08%
12/31/2019	\$25.58	\$25.59	\$0.01	0.04%
1/2/2020	\$25.35	\$25.36	\$0.01	0.04%
1/3/2020	\$25.68	\$25.69	\$0.01	0.04%
1/6/2020	\$25.63	\$25.64	\$0.01	0.04%
1/7/2020	\$32.49	\$32.50	\$0.01	0.03%
1/8/2020	\$32.72	\$32.73	\$0.01	0.03%

Exhibit 10A**Apache Corporation****Bid Ask Spreads on the NYSE**

Source: Bloomberg

	APA	NYSE Sample	APA	NYSE Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.01	\$0.03	0.03%	0.13%
Median	\$0.01	\$0.03	0.03%	0.11%

Apache's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
1/9/2020	\$32.54	\$32.55	\$0.01	0.03%
1/10/2020	\$32.37	\$32.38	\$0.01	0.03%
1/13/2020	\$31.98	\$32.00	\$0.02	0.06%
1/14/2020	\$33.58	\$33.59	\$0.01	0.03%
1/15/2020	\$33.54	\$33.55	\$0.01	0.03%
1/16/2020	\$33.09	\$33.11	\$0.02	0.06%
1/17/2020	\$32.67	\$32.68	\$0.01	0.03%
1/21/2020	\$31.73	\$31.74	\$0.01	0.03%
1/22/2020	\$30.87	\$30.88	\$0.01	0.03%
1/23/2020	\$30.26	\$30.27	\$0.01	0.03%
1/24/2020	\$29.97	\$29.98	\$0.01	0.03%
1/27/2020	\$28.85	\$28.86	\$0.01	0.03%
1/28/2020	\$28.73	\$28.74	\$0.01	0.03%
1/29/2020	\$28.08	\$28.09	\$0.01	0.04%
1/30/2020	\$28.18	\$28.19	\$0.01	0.04%
1/31/2020	\$27.40	\$27.41	\$0.01	0.04%
2/3/2020	\$27.56	\$27.57	\$0.01	0.04%
2/4/2020	\$28.14	\$28.15	\$0.01	0.04%
2/5/2020	\$28.90	\$28.91	\$0.01	0.03%
2/6/2020	\$28.95	\$28.96	\$0.01	0.03%
2/7/2020	\$28.11	\$28.12	\$0.01	0.04%
2/10/2020	\$27.96	\$27.97	\$0.01	0.04%
2/11/2020	\$28.17	\$28.18	\$0.01	0.04%
2/12/2020	\$28.47	\$28.48	\$0.01	0.04%
2/13/2020	\$27.91	\$27.92	\$0.01	0.04%
2/14/2020	\$27.33	\$27.35	\$0.02	0.07%
2/18/2020	\$28.12	\$28.13	\$0.01	0.04%
2/19/2020	\$28.45	\$28.48	\$0.03	0.11%
2/20/2020	\$28.56	\$28.58	\$0.02	0.07%
2/21/2020	\$28.37	\$28.41	\$0.04	0.14%
2/24/2020	\$26.73	\$26.74	\$0.01	0.04%
2/25/2020	\$25.51	\$25.52	\$0.01	0.04%
2/26/2020	\$24.43	\$24.44	\$0.01	0.04%
2/27/2020	\$25.05	\$25.07	\$0.02	0.08%
2/28/2020	\$24.91	\$24.92	\$0.01	0.04%

Exhibit 10A**Apache Corporation****Bid Ask Spreads on the NYSE**

Source: Bloomberg

	APA	NYSE Sample	APA	NYSE Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.01	\$0.03	0.03%	0.13%
Median	\$0.01	\$0.03	0.03%	0.11%

Apache's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
3/2/2020	\$25.52	\$25.53	\$0.01	0.04%
3/3/2020	\$24.96	\$24.99	\$0.03	0.12%
3/4/2020	\$25.12	\$25.14	\$0.02	0.08%
3/5/2020	\$24.33	\$24.34	\$0.01	0.04%
3/6/2020	\$20.68	\$20.69	\$0.01	0.05%
3/9/2020	\$9.38	\$9.39	\$0.01	0.11%
3/10/2020	\$10.78	\$10.79	\$0.01	0.09%
3/11/2020	\$8.24	\$8.25	\$0.01	0.12%
3/12/2020	\$7.77	\$7.78	\$0.01	0.13%
3/13/2020	\$8.06	\$8.07	\$0.01	0.12%

Exhibit 10B**Apache Corporation****Companies Used for Bid Ask Spread Analysis on the NYSE**

Bloomberg Symbol	Company
DDD US Equity	3D SYSTEMS CORP
ACCO US Equity	ACCO BRANDS CORP
ALSN US Equity	ALLISON TRANSMISSION HOLDING
AEO US Equity	AMERICAN EAGLE OUTFITTERS
AMRX US Equity	AMNEAL PHARMACEUTICALS INC
ARW US Equity	ARROW ELECTRONICS INC
T US Equity	AT&T INC
ATTO US Equity	ATENTO SA
ATI US Equity	ATI INC
AZO US Equity	AUTOZONE INC
AXS US Equity	AXIS CAPITAL HOLDINGS LTD
BBWI US Equity	BATH & BODY WORKS INC
BIG US Equity	BIG LOTS INC
BIO US Equity	BIO-RAD LABORATORIES-A
BLK US Equity	BLACKROCK INC
BVH US Equity	BLUEGREEN VACATIONS HOLDING
BXC US Equity	BLUELINX HOLDINGS INC
BCC US Equity	BOISE CASCADE CO
BFAM US Equity	BRIGHT HORIZONS FAMILY SOLUT
EAT US Equity	BRINKER INTERNATIONAL INC
BF/A US Equity	BROWN-FORMAN CORP-CLASS A
CNNE US Equity	CANNAE HOLDINGS INC
CTLT US Equity	CATALENT INC
CPF US Equity	CENTRAL PACIFIC FINANCIAL CO
CC US Equity	CHEMOURS CO/THE
CGA US Equity	CHINA GREEN AGRICULTURE INC
CIR US Equity	CIRCOR INTERNATIONAL INC
CLF US Equity	CLEVELAND-CLIFFS INC
CNMD US Equity	CONMED CORP
CULP US Equity	CULP INC
CUBI US Equity	CUSTOMERS BANCORP INC
DBRG US Equity	DIGITALBRIDGE GROUP INC
DIN US Equity	DINE BRANDS GLOBAL INC
DCI US Equity	DONALDSON CO INC
LPG US Equity	DORIAN LPG LTD
ELV US Equity	ELEVANCE HEALTH INC
EMR US Equity	EMERSON ELECTRIC CO
EVC US Equity	ENTRAVISION COMMUNICATIONS-A
EL US Equity	ESTEE LAUDER COMPANIES-CL A
ETD US Equity	ETHAN ALLEN INTERIORS INC
FN US Equity	FABRINET
FBP US Equity	FIRST BANCORP PUERTO RICO

Exhibit 10B**Apache Corporation****Companies Used for Bid Ask Spread Analysis on the NYSE**

Bloomberg Symbol	Company
FL US Equity	FOOT LOCKER INC
G US Equity	GENPACT LTD
GLT US Equity	GLATFELTER CORP
GPN US Equity	GLOBAL PAYMENTS INC
GSBD US Equity	GOLDMAN SACHS BDC INC
GBX US Equity	GREENBRIER COMPANIES INC
HSC US Equity	HARSCO CORP
H US Equity	HYATT HOTELS CORP - CL A
ICD US Equity	INDEPENDENCE CONTRACT DRILLI
INGR US Equity	INGREDION INC
ICE US Equity	INTERCONTINENTAL EXCHANGE IN
IP US Equity	INTERNATIONAL PAPER CO
JBL US Equity	JABIL INC
KAMN US Equity	KAMAN CORP
LAZ US Equity	LAZARD LTD-CL A
LEA US Equity	LEAR CORP
LII US Equity	LENNOX INTERNATIONAL INC
LOB US Equity	LIVE OAK BANCSHARES INC
MDC US Equity	MDC HOLDINGS INC
MDU US Equity	MDU RESOURCES GROUP INC
MTH US Equity	MERITAGE HOMES CORP
MG US Equity	MISTRAS GROUP INC
MCO US Equity	MOODY'S CORP
MYE US Equity	MYERS INDUSTRIES INC
ORN US Equity	ORION GROUP HOLDINGS INC
ORA US Equity	ORMAT TECHNOLOGIES INC
PCG US Equity	P G & E CORP
PKG US Equity	PACKAGING CORP OF AMERICA
PARR US Equity	PAR PACIFIC HOLDINGS INC
PAG US Equity	PENSKE AUTOMOTIVE GROUP INC
PR US Equity	PERMIAN RESOURCES CORP
PM US Equity	PHILIP MORRIS INTERNATIONAL
PPG US Equity	PPG INDUSTRIES INC
PRI US Equity	PRIMERICA INC
RRC US Equity	RANGE RESOURCES CORP
RMAX US Equity	RE/MAX HOLDINGS INC-CL A
RGA US Equity	REINSURANCE GROUP OF AMERICA
RSG US Equity	REPUBLIC SERVICES INC
RFP US Equity	RESOLUTE FOREST PRODUCTS
RNG US Equity	RINGCENTRAL INC-CLASS A
SXT US Equity	SENSIENT TECHNOLOGIES CORP
TRGP US Equity	TARGA RESOURCES CORP

Exhibit 10B**Apache Corporation****Companies Used for Bid Ask Spread Analysis on the NYSE**

Bloomberg Symbol	Company
TXT US Equity	TEXTRON INC
TDG US Equity	TRANSDIGM GROUP INC
RIG US Equity	TRANSOCEAN LTD
TRU US Equity	TRANSUNION
TRN US Equity	TRINITY INDUSTRIES INC
TPVG US Equity	TRIPLEPOINT VENTURE GROWTH B
TGI US Equity	TRIUMPH GROUP INC
TPB US Equity	TURNING POINT BRANDS INC
TPC US Equity	TUTOR PERINI CORP
UIS US Equity	UNISYS CORP
UTI US Equity	UNIVERSAL TECHNICAL INSTITUT
VHI US Equity	VALHI INC
VHC US Equity	VIRNETX HOLDING CORP
VMC US Equity	VULCAN MATERIALS CO
WST US Equity	WEST PHARMACEUTICAL SERVICES
WHG US Equity	WESTWOOD HOLDINGS GROUP INC

Exhibit 11A**Apache Corporation****Rolling Regression Model Results**

Date	Control Period Begin	Control Period End	Num Obs	Model R2	Model Adjusted R2	Standard Error	Durbin Watson	Intercept	Market ¹		Industry Residual ²	
									Coefficient	t Statistic	Coefficient	t Statistic
9/7/2016	9/7/2015	9/6/2016	248	0.7348	0.7326	0.0168	1.866	0.01%	1.940	16.96	1.074	19.78
9/8/2016	9/8/2015	9/7/2016	249	0.7254	0.7232	0.0172	1.839	0.04%	1.938	16.55	1.078	19.39
9/9/2016	9/9/2015	9/8/2016	249	0.7246	0.7223	0.0174	1.804	0.08%	1.966	16.39	1.090	19.46
9/12/2016	9/12/2015	9/11/2016	247	0.7192	0.7169	0.0175	1.774	0.13%	1.902	15.86	1.095	19.32
9/13/2016	9/13/2015	9/12/2016	248	0.7192	0.7169	0.0175	1.796	0.12%	1.888	15.85	1.095	19.40
9/14/2016	9/14/2015	9/13/2016	249	0.7210	0.7188	0.0175	1.796	0.12%	1.898	16.04	1.095	19.45
9/15/2016	9/15/2015	9/14/2016	249	0.7213	0.7191	0.0175	1.793	0.11%	1.900	16.05	1.093	19.47
9/16/2016	9/16/2015	9/15/2016	249	0.7216	0.7193	0.0175	1.784	0.12%	1.918	16.16	1.092	19.40
9/19/2016	9/19/2015	9/18/2016	247	0.7177	0.7154	0.0174	1.795	0.13%	1.876	15.75	1.087	19.29
9/20/2016	9/20/2015	9/19/2016	248	0.7178	0.7155	0.0174	1.795	0.12%	1.877	15.78	1.088	19.34
9/21/2016	9/21/2015	9/20/2016	249	0.7177	0.7154	0.0174	1.794	0.12%	1.877	15.81	1.088	19.38
9/22/2016	9/22/2015	9/21/2016	249	0.7206	0.7184	0.0174	1.799	0.14%	1.898	16.01	1.091	19.45
9/23/2016	9/23/2015	9/22/2016	249	0.7202	0.7180	0.0174	1.804	0.13%	1.897	15.96	1.092	19.46
9/26/2016	9/26/2015	9/25/2016	247	0.7203	0.7180	0.0174	1.804	0.13%	1.899	15.96	1.087	19.33
9/27/2016	9/27/2015	9/26/2016	248	0.7203	0.7180	0.0174	1.806	0.14%	1.894	15.98	1.087	19.39
9/28/2016	9/28/2015	9/27/2016	249	0.7197	0.7174	0.0174	1.805	0.13%	1.888	15.96	1.083	19.42
9/29/2016	9/29/2015	9/28/2016	249	0.7212	0.7189	0.0174	1.800	0.15%	1.895	15.76	1.083	19.69
9/30/2016	9/30/2015	9/29/2016	249	0.7205	0.7183	0.0174	1.806	0.15%	1.886	15.73	1.076	19.67
10/3/2016	10/3/2015	10/2/2016	247	0.7136	0.7112	0.0174	1.805	0.12%	1.834	15.10	1.074	19.49
10/4/2016	10/4/2015	10/3/2016	248	0.7136	0.7112	0.0173	1.807	0.12%	1.833	15.12	1.074	19.53
10/5/2016	10/5/2015	10/4/2016	249	0.7132	0.7109	0.0173	1.807	0.13%	1.832	15.15	1.074	19.56
10/6/2016	10/6/2015	10/5/2016	249	0.7126	0.7103	0.0173	1.806	0.13%	1.835	15.07	1.074	19.57
10/7/2016	10/7/2015	10/6/2016	249	0.7105	0.7081	0.0173	1.798	0.10%	1.846	15.15	1.069	19.34
10/10/2016	10/10/2015	10/9/2016	247	0.7112	0.7089	0.0173	1.808	0.11%	1.852	15.14	1.069	19.28
10/11/2016	10/11/2015	10/10/2016	248	0.7113	0.7090	0.0173	1.808	0.11%	1.853	15.18	1.069	19.32
10/12/2016	10/12/2015	10/11/2016	249	0.7118	0.7095	0.0173	1.808	0.11%	1.851	15.26	1.069	19.36
10/13/2016	10/13/2015	10/12/2016	249	0.7110	0.7087	0.0172	1.808	0.12%	1.853	15.29	1.066	19.28
10/14/2016	10/14/2015	10/13/2016	249	0.7111	0.7087	0.0172	1.807	0.12%	1.855	15.29	1.066	19.28
10/17/2016	10/17/2015	10/16/2016	247	0.7108	0.7084	0.0173	1.808	0.11%	1.870	15.28	1.062	19.14
10/18/2016	10/18/2015	10/17/2016	248	0.7101	0.7077	0.0173	1.804	0.12%	1.869	15.29	1.061	19.14
10/19/2016	10/19/2015	10/18/2016	249	0.7094	0.7070	0.0173	1.798	0.12%	1.870	15.31	1.060	19.13
10/20/2016	10/20/2015	10/19/2016	249	0.7093	0.7069	0.0173	1.799	0.14%	1.872	15.33	1.061	19.11
10/21/2016	10/21/2015	10/20/2016	249	0.7087	0.7064	0.0173	1.801	0.12%	1.875	15.34	1.060	19.06
10/24/2016	10/24/2015	10/23/2016	247	0.7087	0.7063	0.0173	1.799	0.13%	1.889	15.24	1.065	19.01
10/25/2016	10/25/2015	10/24/2016	248	0.7088	0.7064	0.0173	1.799	0.12%	1.885	15.24	1.065	19.08
10/26/2016	10/26/2015	10/25/2016	249	0.7091	0.7068	0.0173	1.799	0.12%	1.887	15.29	1.065	19.13
10/27/2016	10/27/2015	10/26/2016	249	0.7077	0.7053	0.0173	1.796	0.13%	1.882	15.23	1.068	19.07
10/28/2016	10/28/2015	10/27/2016	249	0.7060	0.7036	0.0173	1.802	0.14%	1.878	15.18	1.066	18.98
10/31/2016	10/31/2015	10/30/2016	247	0.7051	0.7026	0.0174	1.802	0.12%	1.874	15.05	1.065	18.89
11/1/2016	11/1/2015	10/31/2016	248	0.7056	0.7032	0.0173	1.803	0.11%	1.874	15.08	1.064	18.97
11/2/2016	11/2/2015	11/1/2016	249	0.7056	0.7032	0.0173	1.804	0.12%	1.870	15.10	1.064	19.02
11/3/2016	11/3/2015	11/2/2016	249	0.7054	0.7030	0.0173	1.803	0.12%	1.870	15.06	1.064	19.03
11/4/2016	11/4/2015	11/3/2016	248	0.7037	0.7013	0.0173	1.802	0.11%	1.866	15.00	1.063	18.89

Exhibit 11A

Apache Corporation

Rolling Regression Model Results

Date	Control Period Begin	Control Period End	Num Obs	Model R2	Model Adjusted R2	Standard Error	Durbin Watson	Intercept	Market ¹		Industry Residual ²	
									Coefficient	t Statistic	Coefficient	t Statistic
11/7/2016	11/7/2015	11/6/2016	247	0.7017	0.6993	0.0174	1.462	0.13%	1.863	14.93	1.057	18.74
11/8/2016	11/8/2015	11/7/2016	248	0.7021	0.6997	0.0174	1.474	0.12%	1.842	14.97	1.058	18.80
11/9/2016	11/9/2015	11/8/2016	249	0.7018	0.6994	0.0173	1.473	0.11%	1.838	14.96	1.059	18.85
11/10/2016	11/10/2015	11/9/2016	249	0.7614	0.7595	0.0150	1.580	0.05%	1.910	18.01	1.043	21.47
11/11/2016	11/11/2015	11/10/2016	249	0.7614	0.7595	0.0150	1.575	0.06%	1.911	18.03	1.042	21.45
11/14/2016	11/14/2015	11/13/2016	247	0.7617	0.7597	0.0148	1.555	0.07%	1.924	18.15	1.029	21.23
11/15/2016	11/15/2015	11/14/2016	248	0.7618	0.7599	0.0148	1.553	0.07%	1.923	18.17	1.030	21.29
11/16/2016	11/16/2015	11/15/2016	249	0.7614	0.7595	0.0150	1.532	0.10%	1.946	18.21	1.038	21.30
11/17/2016	11/17/2015	11/16/2016	249	0.7617	0.7598	0.0150	1.566	0.09%	1.946	18.15	1.041	21.38
11/18/2016	11/18/2015	11/17/2016	249	0.7618	0.7599	0.0149	1.564	0.09%	1.939	18.09	1.042	21.43
11/21/2016	11/21/2015	11/20/2016	247	0.7630	0.7611	0.0150	1.555	0.11%	1.960	18.15	1.045	21.36
11/22/2016	11/22/2015	11/21/2016	248	0.7610	0.7591	0.0150	1.548	0.12%	1.962	18.13	1.038	21.25
11/23/2016	11/23/2015	11/22/2016	249	0.7609	0.7589	0.0150	1.548	0.11%	1.960	18.14	1.039	21.30
11/25/2016	11/25/2015	11/24/2016	248	0.7605	0.7585	0.0150	1.549	0.10%	1.958	18.13	1.039	21.20
11/28/2016	11/28/2015	11/27/2016	247	0.7601	0.7581	0.0150	1.547	0.11%	1.955	18.06	1.039	21.14
11/29/2016	11/29/2015	11/28/2016	248	0.7608	0.7588	0.0150	1.546	0.10%	1.959	18.15	1.038	21.20
11/30/2016	11/30/2015	11/29/2016	249	0.7608	0.7589	0.0150	1.546	0.09%	1.958	18.18	1.038	21.26
12/1/2016	12/1/2015	11/30/2016	249	0.7664	0.7645	0.0150	1.545	0.13%	1.946	18.00	1.015	21.98
12/2/2016	12/2/2015	12/1/2016	249	0.7664	0.7645	0.0150	1.537	0.13%	1.960	18.07	1.012	21.92
12/5/2016	12/5/2015	12/4/2016	247	0.7650	0.7631	0.0150	1.530	0.16%	1.989	17.97	1.018	21.72
12/6/2016	12/6/2015	12/5/2016	248	0.7652	0.7633	0.0150	1.530	0.16%	1.991	18.03	1.018	21.76
12/7/2016	12/7/2015	12/6/2016	249	0.7651	0.7631	0.0150	1.532	0.16%	1.990	18.05	1.018	21.80
12/8/2016	12/8/2015	12/7/2016	249	0.7654	0.7635	0.0149	1.544	0.16%	1.962	17.92	1.028	21.94
12/9/2016	12/9/2015	12/8/2016	249	0.7670	0.7651	0.0149	1.547	0.14%	1.971	18.05	1.027	22.00
12/12/2016	12/12/2015	12/11/2016	247	0.7649	0.7629	0.0148	1.500	0.14%	1.934	17.59	1.024	22.01
12/13/2016	12/13/2015	12/12/2016	248	0.7646	0.7627	0.0148	1.503	0.14%	1.934	17.61	1.024	22.04
12/14/2016	12/14/2015	12/13/2016	249	0.7639	0.7619	0.0148	1.505	0.14%	1.932	17.62	1.023	22.03
12/15/2016	12/15/2015	12/14/2016	249	0.7652	0.7633	0.0148	1.516	0.13%	1.936	17.71	1.024	22.09
12/16/2016	12/16/2015	12/15/2016	249	0.7648	0.7629	0.0147	1.521	0.13%	1.927	17.61	1.023	22.13
12/19/2016	12/19/2015	12/18/2016	247	0.7649	0.7630	0.0147	1.525	0.14%	1.975	17.69	1.028	21.94
12/20/2016	12/20/2015	12/19/2016	248	0.7649	0.7630	0.0147	1.526	0.14%	1.975	17.72	1.027	21.98
12/21/2016	12/21/2015	12/20/2016	249	0.7647	0.7628	0.0147	1.525	0.13%	1.974	17.74	1.027	22.02
12/22/2016	12/22/2015	12/21/2016	249	0.7648	0.7629	0.0147	1.521	0.14%	1.982	17.80	1.027	21.98
12/23/2016	12/23/2015	12/22/2016	249	0.7655	0.7636	0.0146	1.526	0.15%	1.988	17.85	1.027	22.01
12/27/2016	12/27/2015	12/26/2016	248	0.7613	0.7593	0.0147	1.525	0.13%	1.959	17.48	1.030	21.81
12/28/2016	12/28/2015	12/27/2016	249	0.7610	0.7591	0.0146	1.524	0.12%	1.958	17.51	1.030	21.84
12/29/2016	12/29/2015	12/28/2016	249	0.7616	0.7596	0.0146	1.522	0.13%	1.961	17.58	1.034	21.84
12/30/2016	12/30/2015	12/29/2016	249	0.7616	0.7596	0.0146	1.518	0.13%	1.968	17.58	1.034	21.83
1/3/2017	1/3/2016	1/2/2017	248	0.7634	0.7615	0.0146	1.512	0.12%	1.973	17.60	1.041	21.93
1/4/2017	1/4/2016	1/3/2017	249	0.7629	0.7610	0.0146	1.510	0.12%	1.967	17.59	1.041	21.96
1/5/2017	1/5/2016	1/4/2017	249	0.7627	0.7608	0.0146	1.501	0.10%	1.987	17.66	1.043	21.89
1/6/2017	1/6/2016	1/5/2017	249	0.7643	0.7624	0.0145	1.505	0.11%	1.990	17.76	1.042	21.96
1/9/2017	1/9/2016	1/8/2017	247	0.7581	0.7561	0.0142	1.554	0.14%	1.919	17.04	1.022	21.78

Exhibit 11A

Apache Corporation

Rolling Regression Model Results

Date	Control Period Begin	Control Period End	Num Obs	Model R2	Model Adjusted R2	Standard Error	Durbin Watson	Intercept	Market ¹		Industry Residual ²	
									Coefficient	t Statistic	Coefficient	t Statistic
1/10/2017	1/10/2016	1/9/2017	248	0.7578	0.7558	0.0142	1.554	0.14%	1.921	17.08	1.020	21.79
1/11/2017	1/11/2016	1/10/2017	249	0.7577	0.7557	0.0142	1.553	0.14%	1.921	17.11	1.021	21.83
1/12/2017	1/12/2016	1/11/2017	249	0.7552	0.7532	0.0142	1.538	0.16%	1.922	17.12	1.021	21.58
1/13/2017	1/13/2016	1/12/2017	249	0.7599	0.7580	0.0140	1.569	0.16%	1.926	17.30	1.033	21.89
1/17/2017	1/17/2016	1/16/2017	247	0.7584	0.7565	0.0140	1.566	0.13%	2.001	17.19	1.026	21.69
1/18/2017	1/18/2016	1/17/2017	248	0.7584	0.7564	0.0140	1.567	0.13%	1.998	17.21	1.026	21.74
1/19/2017	1/19/2016	1/18/2017	249	0.7584	0.7564	0.0139	1.567	0.13%	1.998	17.24	1.026	21.79
1/20/2017	1/20/2016	1/19/2017	249	0.7599	0.7579	0.0139	1.586	0.14%	1.999	17.34	1.038	21.86
1/23/2017	1/23/2016	1/22/2017	247	0.7559	0.7539	0.0138	1.600	0.09%	1.983	17.03	1.038	21.58
1/24/2017	1/24/2016	1/23/2017	248	0.7562	0.7543	0.0137	1.601	0.08%	1.986	17.10	1.038	21.63
1/25/2017	1/25/2016	1/24/2017	249	0.7558	0.7538	0.0137	1.598	0.08%	1.982	17.10	1.038	21.66
1/26/2017	1/26/2016	1/25/2017	249	0.7585	0.7565	0.0135	1.503	0.09%	1.954	16.94	1.059	22.04
1/27/2017	1/27/2016	1/26/2017	249	0.7695	0.7677	0.0132	1.529	0.10%	1.964	17.31	1.080	22.84
1/30/2017	1/30/2016	1/29/2017	247	0.7636	0.7617	0.0133	1.522	0.06%	1.986	16.95	1.078	22.38
1/31/2017	1/31/2016	1/30/2017	248	0.7653	0.7634	0.0133	1.524	0.05%	1.998	17.12	1.078	22.49
2/1/2017	2/1/2016	1/31/2017	249	0.7646	0.7627	0.0133	1.521	0.05%	1.998	17.13	1.077	22.48
2/2/2017	2/2/2016	2/1/2017	249	0.7611	0.7591	0.0133	1.508	0.05%	1.995	17.00	1.075	22.24
2/3/2017	2/3/2016	2/2/2017	249	0.7578	0.7559	0.0133	1.542	0.07%	1.965	16.52	1.076	22.29
2/6/2017	2/6/2016	2/5/2017	247	0.7508	0.7487	0.0133	1.515	0.06%	1.933	16.02	1.084	21.87
2/7/2017	2/7/2016	2/6/2017	248	0.7507	0.7486	0.0133	1.506	0.05%	1.939	16.06	1.086	21.90
2/8/2017	2/8/2016	2/7/2017	249	0.7500	0.7480	0.0133	1.520	0.04%	1.940	16.07	1.081	21.90
2/9/2017	2/9/2016	2/8/2017	249	0.7559	0.7539	0.0131	1.563	0.04%	1.926	16.07	1.094	22.44
2/10/2017	2/10/2016	2/9/2017	249	0.7489	0.7469	0.0132	1.549	0.06%	1.915	15.91	1.086	21.92
2/13/2017	2/13/2016	2/12/2017	247	0.7472	0.7452	0.0131	1.542	0.06%	1.870	15.30	1.089	22.08
2/14/2017	2/14/2016	2/13/2017	248	0.7472	0.7451	0.0131	1.544	0.06%	1.865	15.29	1.088	22.14
2/15/2017	2/15/2016	2/14/2017	249	0.7393	0.7372	0.0133	1.533	0.04%	1.854	14.96	1.087	21.77
2/16/2017	2/16/2016	2/15/2017	250	0.7383	0.7361	0.0133	1.590	0.04%	1.851	14.95	1.083	21.75
2/17/2017	2/17/2016	2/16/2017	250	0.7409	0.7388	0.0132	1.617	0.04%	1.860	14.96	1.092	21.97
2/21/2017	2/21/2016	2/20/2017	248	0.7361	0.7340	0.0131	1.608	0.05%	1.791	14.36	1.082	21.85
2/22/2017	2/22/2016	2/21/2017	249	0.7362	0.7340	0.0131	1.610	0.05%	1.790	14.39	1.082	21.89
2/23/2017	2/23/2016	2/22/2017	249	0.7308	0.7287	0.0131	1.613	0.04%	1.749	13.95	1.075	21.76
2/24/2017	2/24/2016	2/23/2017	248	0.7286	0.7264	0.0131	1.618	0.05%	1.721	13.62	1.082	21.73
2/27/2017	2/27/2016	2/26/2017	247	0.7257	0.7235	0.0131	1.578	0.03%	1.730	13.67	1.069	21.42
2/28/2017	2/28/2016	2/27/2017	248	0.7243	0.7220	0.0131	1.602	0.02%	1.730	13.65	1.068	21.38
3/1/2017	3/1/2016	2/28/2017	248	0.7240	0.7217	0.0130	1.616	0.03%	1.716	13.54	1.068	21.43
3/2/2017	3/2/2016	3/1/2017	248	0.7222	0.7200	0.0131	1.577	0.03%	1.767	13.66	1.064	21.22
3/3/2017	3/3/2016	3/2/2017	248	0.7142	0.7118	0.0130	1.602	0.00%	1.747	13.65	1.044	20.64
3/6/2017	3/6/2016	3/5/2017	247	0.7138	0.7114	0.0126	1.707	-0.05%	1.714	13.80	1.014	20.44
3/7/2017	3/7/2016	3/6/2017	248	0.7133	0.7110	0.0126	1.709	-0.05%	1.711	13.81	1.012	20.47
3/8/2017	3/8/2016	3/7/2017	248	0.7144	0.7121	0.0124	1.666	-0.08%	1.714	14.05	0.998	20.39
3/9/2017	3/9/2016	3/8/2017	248	0.7015	0.6991	0.0123	1.702	-0.05%	1.635	13.43	0.973	19.89
3/10/2017	3/10/2016	3/9/2017	248	0.7049	0.7025	0.0122	1.706	-0.04%	1.638	13.48	0.979	20.08
3/13/2017	3/13/2016	3/12/2017	247	0.6977	0.6952	0.0122	1.701	-0.06%	1.583	12.87	0.975	19.94

Exhibit 11A**Apache Corporation****Rolling Regression Model Results**

Date	Control Period Begin	Control Period End	Num Obs	Model R2	Model Adjusted R2	Standard Error	Durbin Watson	Intercept	Market ¹		Industry Residual ²	
									Coefficient	t Statistic	Coefficient	t Statistic
3/14/2017	3/14/2016	3/13/2017	248	0.6972	0.6947	0.0122	1.701	-0.06%	1.583	12.88	0.975	19.95
3/15/2017	3/15/2016	3/14/2017	248	0.6943	0.6918	0.0123	1.708	-0.05%	1.577	12.79	0.971	19.82
3/16/2017	3/16/2016	3/15/2017	248	0.6940	0.6915	0.0123	1.727	-0.05%	1.578	12.82	0.969	19.78
3/17/2017	3/17/2016	3/16/2017	248	0.6920	0.6895	0.0123	1.730	-0.05%	1.568	12.72	0.972	19.71
3/20/2017	3/20/2016	3/19/2017	247	0.6928	0.6903	0.0122	1.705	-0.05%	1.566	12.72	0.969	19.71
3/21/2017	3/21/2016	3/20/2017	248	0.6927	0.6901	0.0122	1.705	-0.05%	1.567	12.75	0.969	19.74
3/22/2017	3/22/2016	3/21/2017	248	0.6942	0.6917	0.0122	1.715	-0.05%	1.557	12.80	0.971	19.81
3/23/2017	3/23/2016	3/22/2017	248	0.6949	0.6924	0.0122	1.704	-0.05%	1.559	12.83	0.971	19.83
3/24/2017	3/24/2016	3/23/2017	248	0.6894	0.6869	0.0122	1.701	-0.03%	1.534	12.60	0.966	19.62
3/27/2017	3/27/2016	3/26/2017	248	0.6895	0.6870	0.0122	1.708	-0.04%	1.535	12.64	0.964	19.61
3/28/2017	3/28/2016	3/27/2017	249	0.6890	0.6865	0.0121	1.710	-0.04%	1.537	12.66	0.964	19.62
3/29/2017	3/29/2016	3/28/2017	249	0.6907	0.6882	0.0122	1.712	-0.03%	1.549	12.78	0.966	19.65
3/30/2017	3/30/2016	3/29/2017	249	0.6926	0.6902	0.0122	1.703	-0.02%	1.560	12.80	0.971	19.77
3/31/2017	3/31/2016	3/30/2017	249	0.6868	0.6842	0.0123	1.718	-0.02%	1.556	12.61	0.969	19.50
4/3/2017	4/3/2016	4/2/2017	248	0.6848	0.6822	0.0124	1.708	-0.02%	1.582	12.76	0.963	19.22
4/4/2017	4/4/2016	4/3/2017	249	0.6849	0.6824	0.0123	1.715	-0.02%	1.583	12.80	0.963	19.26
4/5/2017	4/5/2016	4/4/2017	249	0.6850	0.6824	0.0123	1.713	-0.01%	1.579	12.77	0.964	19.29
4/6/2017	4/6/2016	4/5/2017	249	0.6857	0.6832	0.0123	1.713	-0.02%	1.609	12.95	0.961	19.21
4/7/2017	4/7/2016	4/6/2017	249	0.6839	0.6813	0.0123	1.704	-0.02%	1.576	12.70	0.958	19.26
4/10/2017	4/10/2016	4/9/2017	248	0.6824	0.6798	0.0123	1.706	-0.04%	1.581	12.63	0.962	19.15
4/11/2017	4/11/2016	4/10/2017	249	0.6825	0.6799	0.0123	1.702	-0.03%	1.582	12.62	0.965	19.22
4/12/2017	4/12/2016	4/11/2017	249	0.6837	0.6811	0.0122	1.700	-0.03%	1.578	12.63	0.966	19.29
4/13/2017	4/13/2016	4/12/2017	249	0.6722	0.6695	0.0122	1.693	-0.04%	1.527	12.19	0.957	18.86
4/17/2017	4/17/2016	4/16/2017	247	0.6731	0.6704	0.0123	1.693	-0.03%	1.568	12.46	0.953	18.63
4/18/2017	4/18/2016	4/17/2017	248	0.6731	0.6704	0.0122	1.693	-0.04%	1.559	12.45	0.954	18.69
4/19/2017	4/19/2016	4/18/2017	248	0.6690	0.6663	0.0123	1.676	-0.06%	1.561	12.33	0.956	18.53
4/20/2017	4/20/2016	4/19/2017	248	0.6677	0.6650	0.0123	1.694	-0.08%	1.558	12.30	0.955	18.46
4/21/2017	4/21/2016	4/20/2017	248	0.6680	0.6653	0.0123	1.681	-0.08%	1.547	12.26	0.957	18.51
4/24/2017	4/24/2016	4/23/2017	247	0.6685	0.6658	0.0123	1.682	-0.09%	1.553	12.31	0.962	18.45
4/25/2017	4/25/2016	4/24/2017	248	0.6681	0.6654	0.0123	1.682	-0.10%	1.530	12.21	0.964	18.55
4/26/2017	4/26/2016	4/25/2017	248	0.6671	0.6644	0.0123	1.690	-0.08%	1.536	12.26	0.963	18.46
4/27/2017	4/27/2016	4/26/2017	248	0.6658	0.6631	0.0123	1.692	-0.09%	1.533	12.25	0.969	18.39
4/28/2017	4/28/2016	4/27/2017	248	0.6659	0.6632	0.0123	1.684	-0.12%	1.530	12.21	0.971	18.42
5/1/2017	5/1/2016	4/30/2017	247	0.6644	0.6616	0.0123	1.702	-0.10%	1.499	11.92	0.972	18.46
5/2/2017	5/2/2016	5/1/2017	248	0.6639	0.6611	0.0123	1.700	-0.10%	1.499	11.94	0.971	18.47
5/3/2017	5/3/2016	5/2/2017	248	0.6641	0.6613	0.0123	1.701	-0.10%	1.509	11.99	0.972	18.46
5/4/2017	5/4/2016	5/3/2017	248	0.6581	0.6553	0.0123	1.697	-0.08%	1.482	11.70	0.970	18.30
5/5/2017	5/5/2016	5/4/2017	247	0.6560	0.6531	0.0123	1.698	-0.07%	1.470	11.56	0.969	18.21
5/8/2017	5/8/2016	5/7/2017	247	0.6575	0.6547	0.0123	1.696	-0.05%	1.485	11.68	0.969	18.22
5/9/2017	5/9/2016	5/8/2017	248	0.6571	0.6543	0.0123	1.691	-0.05%	1.483	11.67	0.971	18.26
5/10/2017	5/10/2016	5/9/2017	248	0.6538	0.6510	0.0123	1.690	-0.03%	1.482	11.66	0.963	18.08
5/11/2017	5/11/2016	5/10/2017	248	0.6539	0.6511	0.0123	1.698	-0.03%	1.483	11.59	0.962	18.13
5/12/2017	5/12/2016	5/11/2017	248	0.6534	0.6506	0.0123	1.700	-0.04%	1.516	11.80	0.959	17.97

Exhibit 11A**Apache Corporation****Rolling Regression Model Results**

Date	Control Period Begin	Control Period End	Num Obs	Model R2	Model Adjusted R2	Standard Error	Durbin Watson	Intercept	Market ¹		Industry Residual ²	
									Coefficient	t Statistic	Coefficient	t Statistic
5/15/2017	5/15/2016	5/14/2017	247	0.6515	0.6486	0.0123	1.685	-0.03%	1.504	11.62	0.959	17.92
5/16/2017	5/16/2016	5/15/2017	248	0.6496	0.6467	0.0123	1.690	-0.04%	1.496	11.56	0.959	17.90
5/17/2017	5/17/2016	5/16/2017	248	0.6479	0.6451	0.0123	1.707	-0.05%	1.477	11.39	0.957	17.92
5/18/2017	5/18/2016	5/17/2017	248	0.6483	0.6455	0.0123	1.667	-0.05%	1.474	11.52	0.955	17.86
5/19/2017	5/19/2016	5/18/2017	248	0.6606	0.6579	0.0121	1.712	-0.06%	1.472	11.75	0.964	18.41
5/22/2017	5/22/2016	5/21/2017	247	0.6632	0.6604	0.0121	1.707	-0.06%	1.492	11.89	0.964	18.41
5/23/2017	5/23/2016	5/22/2017	248	0.6627	0.6599	0.0121	1.706	-0.07%	1.478	11.78	0.968	18.51
5/24/2017	5/24/2016	5/23/2017	248	0.6628	0.6601	0.0121	1.715	-0.08%	1.481	11.81	0.967	18.50
5/25/2017	5/25/2016	5/24/2017	248	0.6628	0.6601	0.0121	1.677	-0.08%	1.492	11.79	0.969	18.51
5/26/2017	5/26/2016	5/25/2017	248	0.6754	0.6727	0.0119	1.682	-0.09%	1.481	11.82	0.988	19.24
5/30/2017	5/30/2016	5/29/2017	247	0.6770	0.6743	0.0119	1.674	-0.09%	1.482	11.81	0.992	19.28
5/31/2017	5/31/2016	5/30/2017	248	0.6770	0.6743	0.0119	1.671	-0.09%	1.484	11.85	0.989	19.32
6/1/2017	6/1/2016	5/31/2017	248	0.6785	0.6759	0.0119	1.694	-0.09%	1.483	11.87	0.990	19.40
6/2/2017	6/2/2016	6/1/2017	248	0.6806	0.6780	0.0118	1.716	-0.08%	1.485	11.96	0.990	19.47
6/5/2017	6/5/2016	6/4/2017	247	0.6802	0.6776	0.0118	1.720	-0.08%	1.476	11.89	0.983	19.44
6/6/2017	6/6/2016	6/5/2017	248	0.6803	0.6777	0.0118	1.725	-0.08%	1.477	11.92	0.983	19.48
6/7/2017	6/7/2016	6/6/2017	248	0.6808	0.6781	0.0118	1.719	-0.07%	1.458	11.75	0.991	19.60
6/8/2017	6/8/2016	6/7/2017	248	0.6769	0.6743	0.0118	1.702	-0.10%	1.452	11.71	0.982	19.39
6/9/2017	6/9/2016	6/8/2017	248	0.6773	0.6747	0.0118	1.710	-0.09%	1.460	11.80	0.978	19.37
6/12/2017	6/12/2016	6/11/2017	247	0.6746	0.6720	0.0118	1.718	-0.05%	1.420	11.42	0.974	19.38
6/13/2017	6/13/2016	6/12/2017	248	0.6745	0.6718	0.0118	1.718	-0.05%	1.419	11.43	0.973	19.42
6/14/2017	6/14/2016	6/13/2017	248	0.6759	0.6732	0.0118	1.721	-0.06%	1.441	11.58	0.972	19.41
6/15/2017	6/15/2016	6/14/2017	248	0.6781	0.6755	0.0118	1.722	-0.08%	1.452	11.67	0.972	19.49
6/16/2017	6/16/2016	6/15/2017	248	0.6747	0.6721	0.0118	1.720	-0.07%	1.450	11.60	0.968	19.33
6/19/2017	6/19/2016	6/18/2017	247	0.6712	0.6685	0.0119	1.693	-0.06%	1.467	11.62	0.973	19.06
6/20/2017	6/20/2016	6/19/2017	248	0.6691	0.6664	0.0119	1.683	-0.06%	1.462	11.60	0.967	19.00
6/21/2017	6/21/2016	6/20/2017	248	0.6630	0.6603	0.0121	1.698	-0.08%	1.477	11.58	0.965	18.66
6/22/2017	6/22/2016	6/21/2017	248	0.6623	0.6595	0.0122	1.675	-0.10%	1.478	11.50	0.971	18.66
6/23/2017	6/23/2016	6/22/2017	248	0.6625	0.6597	0.0122	1.690	-0.10%	1.478	11.50	0.971	18.67
6/26/2017	6/26/2016	6/25/2017	247	0.6513	0.6484	0.0122	1.691	-0.10%	1.446	10.28	0.972	18.71
6/27/2017	6/27/2016	6/26/2017	248	0.6511	0.6483	0.0122	1.691	-0.10%	1.446	10.29	0.972	18.74
6/28/2017	6/28/2016	6/27/2017	248	0.6426	0.6397	0.0121	1.694	-0.08%	1.365	9.54	0.969	18.69
6/29/2017	6/29/2016	6/28/2017	248	0.6360	0.6330	0.0122	1.686	-0.08%	1.330	9.13	0.968	18.56
6/30/2017	6/30/2016	6/29/2017	248	0.6322	0.6292	0.0122	1.698	-0.07%	1.285	8.70	0.962	18.59
7/3/2017	7/3/2016	7/2/2017	247	0.6311	0.6281	0.0122	1.702	-0.07%	1.320	8.80	0.961	18.44
7/5/2017	7/5/2016	7/4/2017	248	0.6340	0.6310	0.0122	1.701	-0.06%	1.327	8.87	0.963	18.59
7/6/2017	7/6/2016	7/5/2017	248	0.6335	0.6305	0.0122	1.703	-0.06%	1.293	8.60	0.964	18.70
7/7/2017	7/7/2016	7/6/2017	248	0.6344	0.6314	0.0123	1.687	-0.08%	1.329	8.83	0.966	18.63
7/10/2017	7/10/2016	7/9/2017	247	0.6356	0.6326	0.0123	1.686	-0.08%	1.341	8.78	0.968	18.67
7/11/2017	7/11/2016	7/10/2017	248	0.6320	0.6290	0.0124	1.681	-0.06%	1.343	8.68	0.974	18.58
7/12/2017	7/12/2016	7/11/2017	248	0.6314	0.6284	0.0124	1.721	-0.06%	1.344	8.68	0.973	18.55
7/13/2017	7/13/2016	7/12/2017	248	0.6244	0.6214	0.0124	1.725	-0.07%	1.308	8.45	0.967	18.33
7/14/2017	7/14/2016	7/13/2017	248	0.6237	0.6207	0.0125	1.724	-0.06%	1.309	8.46	0.968	18.29

Exhibit 11A

Apache Corporation

Rolling Regression Model Results

Date	Control Period Begin	Control Period End	Num Obs	Model R2	Model Adjusted R2	Standard Error	Durbin Watson	Intercept	Market ¹		Industry Residual ²	
									Coefficient	t Statistic	Coefficient	t Statistic
7/17/2017	7/17/2016	7/16/2017	247	0.6245	0.6214	0.0125	1.717	-0.06%	1.311	8.46	0.969	18.28
7/18/2017	7/18/2016	7/17/2017	248	0.6245	0.6214	0.0124	1.717	-0.06%	1.311	8.47	0.969	18.32
7/19/2017	7/19/2016	7/18/2017	248	0.6257	0.6227	0.0124	1.722	-0.06%	1.316	8.51	0.970	18.36
7/20/2017	7/20/2016	7/19/2017	248	0.6282	0.6252	0.0125	1.731	-0.04%	1.342	8.63	0.977	18.42
7/21/2017	7/21/2016	7/20/2017	248	0.6288	0.6258	0.0125	1.744	-0.04%	1.349	8.68	0.976	18.43
7/24/2017	7/24/2016	7/23/2017	247	0.6280	0.6249	0.0125	1.742	-0.04%	1.341	8.58	0.976	18.39
7/25/2017	7/25/2016	7/24/2017	248	0.6272	0.6242	0.0125	1.736	-0.04%	1.343	8.60	0.976	18.39
7/26/2017	7/26/2016	7/25/2017	248	0.6249	0.6219	0.0125	1.736	-0.02%	1.333	8.54	0.970	18.31
7/27/2017	7/27/2016	7/26/2017	248	0.6241	0.6210	0.0125	1.738	-0.03%	1.334	8.54	0.970	18.27
7/28/2017	7/28/2016	7/27/2017	248	0.6247	0.6216	0.0125	1.736	-0.01%	1.322	8.46	0.972	18.34
7/31/2017	7/31/2016	7/30/2017	247	0.6258	0.6227	0.0125	1.746	-0.01%	1.322	8.45	0.978	18.35
8/1/2017	8/1/2016	7/31/2017	248	0.6257	0.6227	0.0125	1.744	-0.02%	1.324	8.48	0.978	18.38
8/2/2017	8/2/2016	8/1/2017	248	0.6179	0.6148	0.0125	1.746	0.00%	1.304	8.36	0.972	18.06
8/3/2017	8/3/2016	8/2/2017	248	0.6192	0.6161	0.0125	1.745	-0.02%	1.314	8.40	0.974	18.11
8/4/2017	8/4/2016	8/3/2017	247	0.6151	0.6120	0.0125	1.702	-0.03%	1.301	8.29	0.970	17.92
8/7/2017	8/7/2016	8/6/2017	247	0.6279	0.6249	0.0123	1.708	-0.01%	1.333	8.58	0.981	18.39
8/8/2017	8/8/2016	8/7/2017	248	0.6293	0.6262	0.0123	1.710	-0.02%	1.330	8.58	0.981	18.50
8/9/2017	8/9/2016	8/8/2017	248	0.6256	0.6226	0.0124	1.702	-0.03%	1.336	8.60	0.974	18.32
8/10/2017	8/10/2016	8/9/2017	248	0.6239	0.6208	0.0124	1.686	-0.03%	1.337	8.58	0.973	18.24
8/11/2017	8/11/2016	8/10/2017	248	0.6258	0.6227	0.0123	1.696	-0.02%	1.332	8.73	0.970	18.26
8/14/2017	8/14/2016	8/13/2017	247	0.6285	0.6254	0.0123	1.693	-0.02%	1.323	8.68	0.976	18.37
8/15/2017	8/15/2016	8/14/2017	248	0.6289	0.6259	0.0123	1.692	-0.03%	1.276	8.44	0.980	18.55
8/16/2017	8/16/2016	8/15/2017	248	0.6283	0.6253	0.0123	1.694	-0.04%	1.271	8.41	0.979	18.53
8/17/2017	8/17/2016	8/16/2017	248	0.6321	0.6291	0.0122	1.707	-0.06%	1.293	8.57	0.978	18.64
8/18/2017	8/18/2016	8/17/2017	248	0.6333	0.6303	0.0122	1.709	-0.06%	1.285	8.69	0.977	18.65
8/21/2017	8/21/2016	8/20/2017	247	0.6303	0.6272	0.0122	1.714	-0.07%	1.272	8.60	0.972	18.49
8/22/2017	8/22/2016	8/21/2017	248	0.6305	0.6274	0.0122	1.714	-0.08%	1.270	8.60	0.974	18.55
8/23/2017	8/23/2016	8/22/2017	248	0.6312	0.6282	0.0122	1.711	-0.08%	1.266	8.63	0.976	18.57
8/24/2017	8/24/2016	8/23/2017	248	0.6326	0.6296	0.0122	1.714	-0.07%	1.257	8.59	0.978	18.65
8/25/2017	8/25/2016	8/24/2017	248	0.6322	0.6292	0.0122	1.714	-0.07%	1.254	8.55	0.978	18.65
8/28/2017	8/28/2016	8/27/2017	247	0.6322	0.6292	0.0122	1.715	-0.07%	1.253	8.53	0.978	18.62
8/29/2017	8/29/2016	8/28/2017	248	0.6328	0.6298	0.0122	1.714	-0.08%	1.253	8.54	0.979	18.69
8/30/2017	8/30/2016	8/29/2017	248	0.6322	0.6292	0.0122	1.710	-0.09%	1.250	8.50	0.980	18.68
8/31/2017	8/31/2016	8/30/2017	248	0.6292	0.6262	0.0122	1.677	-0.09%	1.237	8.38	0.980	18.59
9/1/2017	9/1/2016	8/31/2017	248	0.6274	0.6243	0.0121	1.697	-0.07%	1.222	8.37	0.969	18.50
9/5/2017	9/5/2016	9/4/2017	247	0.6275	0.6245	0.0121	1.688	-0.07%	1.212	8.31	0.966	18.49
9/6/2017	9/6/2016	9/5/2017	248	0.6272	0.6242	0.0121	1.688	-0.07%	1.202	8.29	0.965	18.53
9/7/2017	9/7/2016	9/6/2017	248	0.6288	0.6258	0.0121	1.560	-0.06%	1.206	8.33	0.967	18.59
9/8/2017	9/8/2016	9/7/2017	248	0.6500	0.6471	0.0115	1.726	-0.09%	1.209	8.80	0.959	19.43
9/11/2017	9/11/2016	9/10/2017	247	0.6722	0.6695	0.0109	1.887	-0.16%	1.400	10.24	0.937	19.89
9/12/2017	9/12/2016	9/11/2017	248	0.6728	0.6701	0.0108	1.891	-0.16%	1.397	10.32	0.937	19.93
9/13/2017	9/13/2016	9/12/2017	248	0.6728	0.6701	0.0109	1.888	-0.15%	1.428	10.37	0.938	19.90
9/14/2017	9/14/2016	9/13/2017	248	0.6706	0.6679	0.0109	1.866	-0.12%	1.383	9.79	0.948	20.07

Exhibit 11A

Apache Corporation

Rolling Regression Model Results

Date	Control Period Begin	Control Period End	Num Obs	Model R2	Model Adjusted R2	Standard Error	Durbin Watson	Intercept	Market ¹		Industry Residual ²	
									Coefficient	t Statistic	Coefficient	t Statistic
9/15/2017	9/15/2016	9/14/2017	248	0.6691	0.6664	0.0109	1.886	-0.12%	1.381	9.77	0.948	20.00
9/18/2017	9/18/2016	9/17/2017	247	0.6691	0.6664	0.0109	1.904	-0.12%	1.350	9.51	0.947	20.08
9/19/2017	9/19/2016	9/18/2017	248	0.6682	0.6655	0.0109	1.903	-0.12%	1.350	9.51	0.946	20.08
9/20/2017	9/20/2016	9/19/2017	248	0.6662	0.6634	0.0109	1.891	-0.13%	1.347	9.46	0.945	19.98
9/21/2017	9/21/2016	9/20/2017	248	0.6678	0.6651	0.0110	1.880	-0.11%	1.346	9.42	0.950	20.09
9/22/2017	9/22/2016	9/21/2017	248	0.6614	0.6586	0.0108	1.904	-0.12%	1.258	8.83	0.939	20.01
9/25/2017	9/25/2016	9/24/2017	247	0.6617	0.6590	0.0108	1.903	-0.11%	1.255	8.75	0.942	20.02
9/26/2017	9/26/2016	9/25/2017	248	0.6637	0.6610	0.0109	1.900	-0.09%	1.235	8.60	0.949	20.24
9/27/2017	9/27/2016	9/26/2017	248	0.6617	0.6589	0.0109	1.876	-0.09%	1.250	8.59	0.950	20.13
9/28/2017	9/28/2016	9/27/2017	248	0.6634	0.6607	0.0109	1.898	-0.08%	1.265	8.70	0.956	20.18
9/29/2017	9/29/2016	9/28/2017	248	0.6455	0.6426	0.0109	1.882	-0.11%	1.209	8.32	0.945	19.42
10/2/2017	10/2/2016	10/1/2017	247	0.6502	0.6473	0.0108	1.902	-0.12%	1.240	8.45	0.956	19.55
10/3/2017	10/3/2016	10/2/2017	248	0.6491	0.6462	0.0108	1.899	-0.12%	1.236	8.45	0.955	19.54
10/4/2017	10/4/2016	10/3/2017	248	0.6492	0.6464	0.0108	1.899	-0.12%	1.239	8.45	0.955	19.55
10/5/2017	10/5/2016	10/4/2017	248	0.6505	0.6476	0.0108	1.895	-0.13%	1.243	8.47	0.956	19.60
10/6/2017	10/6/2016	10/5/2017	248	0.6498	0.6470	0.0108	1.898	-0.13%	1.245	8.48	0.958	19.56
10/9/2017	10/9/2016	10/8/2017	247	0.6505	0.6476	0.0108	1.907	-0.13%	1.243	8.45	0.958	19.56
10/10/2017	10/10/2016	10/9/2017	248	0.6485	0.6457	0.0108	1.901	-0.12%	1.234	8.38	0.959	19.54
10/11/2017	10/11/2016	10/10/2017	247	0.6478	0.6449	0.0109	1.901	-0.12%	1.228	8.31	0.959	19.49
10/12/2017	10/12/2016	10/11/2017	247	0.6441	0.6411	0.0109	1.919	-0.13%	1.217	8.07	0.959	19.40
10/13/2017	10/13/2016	10/12/2017	247	0.6440	0.6411	0.0109	1.917	-0.13%	1.222	8.09	0.959	19.39
10/16/2017	10/16/2016	10/15/2017	246	0.6438	0.6409	0.0109	1.921	-0.12%	1.217	8.04	0.960	19.36
10/17/2017	10/17/2016	10/16/2017	247	0.6416	0.6387	0.0110	1.899	-0.11%	1.222	8.02	0.963	19.30
10/18/2017	10/18/2016	10/17/2017	247	0.6440	0.6411	0.0110	1.930	-0.12%	1.227	8.07	0.965	19.40
10/19/2017	10/19/2016	10/18/2017	247	0.6463	0.6434	0.0109	1.946	-0.12%	1.217	8.02	0.967	19.53
10/20/2017	10/20/2016	10/19/2017	247	0.6438	0.6408	0.0109	1.937	-0.13%	1.210	7.98	0.965	19.42
10/23/2017	10/23/2016	10/22/2017	246	0.6409	0.6380	0.0109	1.937	-0.13%	1.191	7.84	0.962	19.29
10/24/2017	10/24/2016	10/23/2017	247	0.6395	0.6365	0.0110	1.909	-0.14%	1.213	7.96	0.963	19.22
10/25/2017	10/25/2016	10/24/2017	247	0.6391	0.6362	0.0110	1.917	-0.13%	1.223	8.01	0.963	19.18
10/26/2017	10/26/2016	10/25/2017	247	0.6391	0.6361	0.0110	1.905	-0.13%	1.223	8.02	0.963	19.18
10/27/2017	10/27/2016	10/26/2017	247	0.6424	0.6395	0.0109	1.900	-0.14%	1.234	8.14	0.962	19.29
10/30/2017	10/30/2016	10/29/2017	246	0.6460	0.6430	0.0109	1.908	-0.13%	1.258	8.31	0.967	19.35
10/31/2017	10/31/2016	10/30/2017	247	0.6459	0.6430	0.0109	1.912	-0.13%	1.252	8.30	0.966	19.39
11/1/2017	11/1/2016	10/31/2017	247	0.6443	0.6414	0.0109	1.912	-0.12%	1.249	8.27	0.968	19.33
11/2/2017	11/2/2016	11/1/2017	247	0.6461	0.6432	0.0109	1.913	-0.12%	1.267	8.35	0.967	19.39
11/3/2017	11/3/2016	11/2/2017	246	0.6466	0.6437	0.0109	1.904	-0.12%	1.279	8.37	0.966	19.36
11/6/2017	11/6/2016	11/5/2017	246	0.6547	0.6518	0.0108	1.913	-0.12%	1.296	8.55	0.975	19.69
11/7/2017	11/7/2016	11/6/2017	247	0.6573	0.6545	0.0111	1.846	-0.09%	1.301	8.39	1.000	19.94
11/8/2017	11/8/2016	11/7/2017	247	0.6554	0.6526	0.0111	1.911	-0.10%	1.325	8.16	1.000	19.94
11/9/2017	11/9/2016	11/8/2017	247	0.6565	0.6536	0.0111	1.913	-0.10%	1.333	8.20	1.000	19.97
11/10/2017	11/10/2016	11/9/2017	247	0.6552	0.6523	0.0111	1.909	-0.09%	1.301	7.91	1.004	20.02
11/13/2017	11/13/2016	11/12/2017	246	0.6563	0.6534	0.0111	1.932	-0.10%	1.303	7.90	1.013	20.04
11/14/2017	11/14/2016	11/13/2017	247	0.6569	0.6541	0.0111	1.938	-0.10%	1.302	7.91	1.013	20.12

Exhibit 11A**Apache Corporation****Rolling Regression Model Results**

Date	Control Period Begin	Control Period End	Num Obs	Model R2	Model Adjusted R2	Standard Error	Durbin Watson	Intercept	Market ¹		Industry Residual ²	
									Coefficient	t Statistic	Coefficient	t Statistic
11/15/2017	11/15/2016	11/14/2017	247	0.6613	0.6585	0.0111	1.912	-0.13%	1.327	8.08	1.014	20.28
11/16/2017	11/16/2016	11/15/2017	247	0.6589	0.6561	0.0108	1.948	-0.15%	1.241	7.76	0.993	20.28
11/17/2017	11/17/2016	11/16/2017	247	0.6572	0.6543	0.0108	1.940	-0.15%	1.199	7.52	0.994	20.28
11/20/2017	11/20/2016	11/19/2017	246	0.6556	0.6528	0.0109	1.936	-0.14%	1.211	7.56	0.997	20.14
11/21/2017	11/21/2016	11/20/2017	247	0.6553	0.6525	0.0109	1.935	-0.14%	1.210	7.57	0.996	20.16
11/22/2017	11/22/2016	11/21/2017	247	0.6570	0.6542	0.0108	1.949	-0.15%	1.197	7.50	1.006	20.28
11/24/2017	11/24/2016	11/23/2017	246	0.6559	0.6530	0.0108	1.954	-0.15%	1.199	7.52	1.003	20.16
11/27/2017	11/27/2016	11/26/2017	246	0.6542	0.6513	0.0108	1.948	-0.14%	1.207	7.54	1.004	20.07
11/28/2017	11/28/2016	11/27/2017	247	0.6570	0.6542	0.0108	1.943	-0.16%	1.214	7.59	1.008	20.24
11/29/2017	11/29/2016	11/28/2017	247	0.6553	0.6525	0.0108	1.948	-0.15%	1.193	7.50	1.008	20.19
11/30/2017	11/30/2016	11/29/2017	247	0.6556	0.6528	0.0108	1.928	-0.14%	1.192	7.49	1.011	20.21
12/1/2017	12/1/2016	11/30/2017	247	0.6302	0.6272	0.0108	1.961	-0.18%	1.284	8.17	1.072	18.68
12/4/2017	12/4/2016	12/3/2017	246	0.6228	0.6197	0.0111	1.879	-0.15%	1.242	7.64	1.095	18.52
12/5/2017	12/5/2016	12/4/2017	247	0.6238	0.6207	0.0111	1.974	-0.15%	1.250	7.69	1.098	18.59
12/6/2017	12/6/2016	12/5/2017	247	0.6214	0.6183	0.0112	1.955	-0.17%	1.252	7.67	1.097	18.48
12/7/2017	12/7/2016	12/6/2017	247	0.6265	0.6234	0.0112	1.952	-0.18%	1.261	7.70	1.104	18.70
12/8/2017	12/8/2016	12/7/2017	247	0.6263	0.6232	0.0112	1.952	-0.18%	1.301	7.82	1.103	18.65
12/11/2017	12/11/2016	12/10/2017	246	0.6246	0.6215	0.0112	1.938	-0.18%	1.302	7.79	1.100	18.54
12/12/2017	12/12/2016	12/11/2017	247	0.6194	0.6163	0.0113	1.909	-0.18%	1.294	7.70	1.096	18.38
12/13/2017	12/13/2016	12/12/2017	247	0.6202	0.6171	0.0113	1.904	-0.19%	1.295	7.70	1.098	18.42
12/14/2017	12/14/2016	12/13/2017	247	0.6206	0.6175	0.0113	1.904	-0.19%	1.291	7.66	1.101	18.45
12/15/2017	12/15/2016	12/14/2017	247	0.6190	0.6159	0.0113	1.911	-0.18%	1.271	7.50	1.105	18.45
12/18/2017	12/18/2016	12/17/2017	246	0.6198	0.6166	0.0113	1.914	-0.19%	1.246	7.40	1.102	18.47
12/19/2017	12/19/2016	12/18/2017	247	0.6203	0.6172	0.0112	1.920	-0.19%	1.253	7.47	1.101	18.51
12/20/2017	12/20/2016	12/19/2017	247	0.6207	0.6176	0.0112	1.920	-0.18%	1.239	7.41	1.100	18.56
12/21/2017	12/21/2016	12/20/2017	247	0.6247	0.6216	0.0112	1.922	-0.17%	1.232	7.36	1.100	18.76
12/22/2017	12/22/2016	12/21/2017	247	0.6314	0.6284	0.0113	1.918	-0.15%	1.247	7.40	1.114	19.06
12/26/2017	12/26/2016	12/25/2017	246	0.6294	0.6263	0.0114	1.940	-0.16%	1.253	7.39	1.112	18.92
12/27/2017	12/27/2016	12/26/2017	247	0.6286	0.6256	0.0113	1.932	-0.15%	1.248	7.37	1.106	18.94
12/28/2017	12/28/2016	12/27/2017	247	0.6295	0.6265	0.0113	1.938	-0.15%	1.248	7.37	1.106	18.98
12/29/2017	12/29/2016	12/28/2017	247	0.6278	0.6247	0.0113	1.943	-0.15%	1.218	7.14	1.105	18.99
1/2/2018	1/2/2017	1/1/2018	246	0.6275	0.6244	0.0114	1.937	-0.15%	1.227	7.18	1.104	18.92
1/3/2018	1/3/2017	1/2/2018	247	0.6262	0.6231	0.0115	1.926	-0.14%	1.295	7.52	1.111	18.77
1/4/2018	1/4/2017	1/3/2018	247	0.6286	0.6255	0.0115	1.943	-0.13%	1.323	7.66	1.113	18.82
1/5/2018	1/5/2017	1/4/2018	247	0.6278	0.6248	0.0116	1.922	-0.12%	1.357	7.78	1.116	18.74
1/8/2018	1/8/2017	1/7/2018	246	0.6289	0.6258	0.0116	1.948	-0.12%	1.335	7.67	1.121	18.79
1/9/2018	1/9/2017	1/8/2018	247	0.6256	0.6226	0.0116	1.930	-0.12%	1.333	7.64	1.118	18.69
1/10/2018	1/10/2017	1/9/2018	247	0.6226	0.6195	0.0117	1.902	-0.13%	1.321	7.50	1.127	18.61
1/11/2018	1/11/2017	1/10/2018	247	0.6230	0.6199	0.0117	1.911	-0.14%	1.328	7.54	1.127	18.61
1/12/2018	1/12/2017	1/11/2018	247	0.6290	0.6260	0.0118	1.916	-0.13%	1.375	7.81	1.135	18.78
1/16/2018	1/16/2017	1/15/2018	246	0.6287	0.6256	0.0118	1.903	-0.12%	1.393	7.90	1.136	18.68
1/17/2018	1/17/2017	1/16/2018	247	0.6300	0.6270	0.0118	1.906	-0.13%	1.405	8.00	1.135	18.75
1/18/2018	1/18/2017	1/17/2018	247	0.6302	0.6272	0.0118	1.908	-0.14%	1.403	8.04	1.134	18.74

Exhibit 11A

Apache Corporation

Rolling Regression Model Results

Date	Control Period Begin	Control Period End	Num Obs	Model R2	Model Adjusted R2	Standard Error	Durbin Watson	Intercept	Market ¹		Industry Residual ²	
									Coefficient	t Statistic	Coefficient	t Statistic
1/19/2018	1/19/2017	1/18/2018	247	0.6294	0.6264	0.0118	1.905	-0.13%	1.399	8.01	1.134	18.71
1/22/2018	1/22/2017	1/21/2018	246	0.6313	0.6283	0.0118	1.918	-0.13%	1.390	7.96	1.136	18.78
1/23/2018	1/23/2017	1/22/2018	247	0.6357	0.6327	0.0118	1.920	-0.13%	1.428	8.23	1.139	18.92
1/24/2018	1/24/2017	1/23/2018	247	0.6347	0.6317	0.0118	1.920	-0.12%	1.419	8.17	1.138	18.90
1/25/2018	1/25/2017	1/24/2018	247	0.6356	0.6326	0.0118	1.920	-0.11%	1.422	8.17	1.140	18.94
1/26/2018	1/26/2017	1/25/2018	247	0.6364	0.6334	0.0118	1.919	-0.12%	1.427	8.16	1.140	18.99
1/29/2018	1/29/2017	1/28/2018	246	0.6379	0.6349	0.0118	1.931	-0.13%	1.427	8.27	1.140	18.97
1/30/2018	1/30/2017	1/29/2018	247	0.6394	0.6365	0.0118	1.932	-0.14%	1.458	8.49	1.142	18.99
1/31/2018	1/31/2017	1/30/2018	247	0.6407	0.6377	0.0118	1.920	-0.14%	1.490	8.74	1.147	18.94
2/1/2018	2/1/2017	1/31/2018	247	0.6415	0.6386	0.0118	1.930	-0.14%	1.490	8.75	1.150	18.98
2/2/2018	2/2/2017	2/1/2018	247	0.6414	0.6384	0.0117	1.917	-0.13%	1.487	8.79	1.140	18.95
2/5/2018	2/5/2017	2/4/2018	246	0.6498	0.6470	0.0117	1.927	-0.14%	1.527	9.46	1.140	19.01
2/6/2018	2/6/2017	2/5/2018	247	0.6567	0.6539	0.0116	1.926	-0.13%	1.409	10.10	1.141	19.10
2/7/2018	2/7/2017	2/6/2018	247	0.6560	0.6532	0.0116	1.910	-0.12%	1.355	9.94	1.138	19.15
2/8/2018	2/8/2017	2/7/2018	247	0.6599	0.6571	0.0116	1.905	-0.13%	1.378	10.12	1.154	19.26
2/9/2018	2/9/2017	2/8/2018	247	0.6667	0.6639	0.0116	1.913	-0.12%	1.348	10.84	1.154	19.25
2/12/2018	2/12/2017	2/11/2018	246	0.6728	0.6701	0.0115	1.941	-0.13%	1.297	10.60	1.166	19.68
2/13/2018	2/13/2017	2/12/2018	247	0.6732	0.6705	0.0115	1.932	-0.13%	1.307	10.79	1.161	19.65
2/14/2018	2/14/2017	2/13/2018	247	0.6738	0.6711	0.0115	1.876	-0.13%	1.309	10.80	1.162	19.68
2/15/2018	2/15/2017	2/14/2018	247	0.6770	0.6743	0.0114	1.845	-0.12%	1.318	11.05	1.147	19.73
2/16/2018	2/16/2017	2/15/2018	247	0.6790	0.6764	0.0114	1.890	-0.12%	1.298	10.99	1.152	19.89
2/20/2018	2/20/2017	2/19/2018	246	0.6809	0.6783	0.0114	1.902	-0.12%	1.297	10.99	1.158	19.95
2/21/2018	2/21/2017	2/20/2018	247	0.6810	0.6784	0.0114	1.903	-0.12%	1.288	10.96	1.157	20.02
2/22/2018	2/22/2017	2/21/2018	247	0.6833	0.6807	0.0114	1.896	-0.13%	1.300	11.07	1.156	20.10
2/23/2018	2/23/2017	2/22/2018	246	0.6844	0.6818	0.0114	1.909	-0.12%	1.297	11.06	1.165	20.12
2/26/2018	2/26/2017	2/25/2018	246	0.6939	0.6914	0.0113	1.896	-0.12%	1.324	11.53	1.175	20.45
2/27/2018	2/27/2017	2/26/2018	247	0.6936	0.6911	0.0112	1.897	-0.12%	1.303	11.43	1.176	20.54
2/28/2018	2/28/2017	2/27/2018	247	0.6985	0.6961	0.0112	1.903	-0.13%	1.323	11.75	1.180	20.67
3/1/2018	3/1/2017	2/28/2018	247	0.6967	0.6942	0.0113	1.883	-0.13%	1.326	11.80	1.173	20.52
3/2/2018	3/2/2017	3/1/2018	247	0.7020	0.6996	0.0112	1.903	-0.11%	1.309	11.76	1.182	20.89
3/5/2018	3/5/2017	3/4/2018	246	0.7018	0.6994	0.0112	1.895	-0.11%	1.307	11.71	1.184	20.85
3/6/2018	3/6/2017	3/5/2018	247	0.7022	0.6998	0.0112	1.897	-0.11%	1.306	11.79	1.184	20.89
3/7/2018	3/7/2017	3/6/2018	247	0.7014	0.6990	0.0112	1.899	-0.11%	1.309	11.79	1.184	20.84
3/8/2018	3/8/2017	3/7/2018	247	0.7002	0.6977	0.0112	1.898	-0.11%	1.306	11.74	1.184	20.79
3/9/2018	3/9/2017	3/8/2018	247	0.6970	0.6946	0.0112	1.930	-0.10%	1.299	11.69	1.198	20.61
3/12/2018	3/12/2017	3/11/2018	246	0.6936	0.6911	0.0112	1.942	-0.11%	1.283	11.64	1.195	20.36
3/13/2018	3/13/2017	3/12/2018	247	0.6931	0.6906	0.0112	1.956	-0.10%	1.282	11.65	1.195	20.38
3/14/2018	3/14/2017	3/13/2018	247	0.6924	0.6898	0.0112	1.922	-0.10%	1.275	11.60	1.196	20.36
3/15/2018	3/15/2017	3/14/2018	247	0.6966	0.6941	0.0112	1.906	-0.10%	1.271	11.65	1.204	20.60
3/16/2018	3/16/2017	3/15/2018	247	0.6984	0.6959	0.0111	1.898	-0.10%	1.268	11.63	1.210	20.73
3/19/2018	3/19/2017	3/18/2018	246	0.7006	0.6981	0.0111	1.899	-0.10%	1.272	11.65	1.214	20.80
3/20/2018	3/20/2017	3/19/2018	247	0.6997	0.6973	0.0111	1.890	-0.09%	1.267	11.73	1.211	20.76
3/21/2018	3/21/2017	3/20/2018	247	0.7010	0.6985	0.0111	1.894	-0.09%	1.268	11.74	1.210	20.84

Exhibit 11A**Apache Corporation****Rolling Regression Model Results**

Date	Control Period Begin	Control Period End	Num Obs	Model R2	Model Adjusted R2	Standard Error	Durbin Watson	Intercept	Market ¹		Industry Residual ²	
									Coefficient	t Statistic	Coefficient	t Statistic
3/22/2018	3/22/2017	3/21/2018	247	0.7083	0.7059	0.0111	1.896	-0.06%	1.261	11.59	1.212	21.40
3/23/2018	3/23/2017	3/22/2018	247	0.7107	0.7083	0.0111	1.896	-0.06%	1.236	11.73	1.212	21.49
3/26/2018	3/26/2017	3/25/2018	246	0.7094	0.7070	0.0112	1.875	-0.05%	1.200	11.57	1.203	21.43
3/27/2018	3/27/2017	3/26/2018	247	0.7074	0.7050	0.0112	1.862	-0.06%	1.146	11.37	1.206	21.46
3/28/2018	3/28/2017	3/27/2018	247	0.7034	0.7010	0.0112	1.876	-0.04%	1.109	11.07	1.207	21.36
3/29/2018	3/29/2017	3/28/2018	247	0.6947	0.6922	0.0114	1.833	-0.05%	1.097	10.82	1.193	20.93
4/2/2018	4/2/2017	4/1/2018	245	0.7045	0.7020	0.0112	1.855	-0.04%	1.113	11.25	1.195	21.22
4/3/2018	4/3/2017	4/2/2018	246	0.7001	0.6976	0.0112	1.831	-0.04%	1.095	11.23	1.189	21.01
4/4/2018	4/4/2017	4/3/2018	246	0.6939	0.6914	0.0113	1.861	-0.04%	1.085	11.07	1.182	20.70
4/5/2018	4/5/2017	4/4/2018	246	0.6920	0.6894	0.0114	1.892	-0.05%	1.079	11.03	1.177	20.59
4/6/2018	4/6/2017	4/5/2018	246	0.6930	0.6904	0.0114	1.903	-0.05%	1.082	11.09	1.177	20.63
4/9/2018	4/9/2017	4/8/2018	245	0.6886	0.6860	0.0114	1.894	-0.05%	1.057	10.96	1.173	20.37
4/10/2018	4/10/2017	4/9/2018	246	0.6876	0.6851	0.0114	1.913	-0.05%	1.057	10.97	1.171	20.36
4/11/2018	4/11/2017	4/10/2018	246	0.6824	0.6798	0.0115	1.877	-0.06%	1.062	11.04	1.152	20.01
4/12/2018	4/12/2017	4/11/2018	246	0.6815	0.6789	0.0115	1.871	-0.05%	1.055	10.96	1.146	20.00
4/13/2018	4/13/2017	4/12/2018	246	0.6823	0.6797	0.0115	1.873	-0.06%	1.048	10.92	1.148	20.07
4/16/2018	4/16/2017	4/15/2018	246	0.6822	0.6796	0.0115	1.874	-0.03%	1.030	10.69	1.152	20.18
4/17/2018	4/17/2017	4/16/2018	247	0.6822	0.6796	0.0115	1.878	-0.04%	1.028	10.71	1.152	20.22
4/18/2018	4/18/2017	4/17/2018	247	0.6820	0.6794	0.0115	1.862	-0.03%	1.033	10.77	1.151	20.18
4/19/2018	4/19/2017	4/18/2018	247	0.6851	0.6825	0.0115	1.859	0.00%	1.025	10.75	1.152	20.38
4/20/2018	4/20/2017	4/19/2018	247	0.6815	0.6789	0.0115	1.873	0.00%	1.028	10.73	1.152	20.17
4/23/2018	4/23/2017	4/22/2018	246	0.6821	0.6795	0.0115	1.882	0.00%	1.033	10.78	1.151	20.13
4/24/2018	4/24/2017	4/23/2018	247	0.6820	0.6794	0.0115	1.881	0.00%	1.033	10.80	1.150	20.17
4/25/2018	4/25/2017	4/24/2018	247	0.6829	0.6803	0.0115	1.870	0.01%	1.053	11.03	1.148	20.09
4/26/2018	4/26/2017	4/25/2018	247	0.6817	0.6791	0.0115	1.876	0.00%	1.044	10.95	1.145	20.06
4/27/2018	4/27/2017	4/26/2018	247	0.6767	0.6741	0.0116	1.855	0.00%	1.034	10.80	1.141	19.85
4/30/2018	4/30/2017	4/29/2018	246	0.6759	0.6733	0.0116	1.868	0.00%	1.035	10.82	1.138	19.74
5/1/2018	5/1/2017	4/30/2018	247	0.6763	0.6737	0.0116	1.867	0.01%	1.019	10.69	1.142	19.89
5/2/2018	5/2/2017	5/1/2018	247	0.6771	0.6744	0.0116	1.876	0.00%	1.017	10.67	1.144	19.94
5/3/2018	5/3/2017	5/2/2018	247	0.6741	0.6714	0.0116	1.873	0.02%	1.005	10.52	1.146	19.85
5/4/2018	5/4/2017	5/3/2018	246	0.6759	0.6732	0.0116	1.881	0.01%	1.006	10.54	1.148	19.89
5/7/2018	5/7/2017	5/6/2018	246	0.6724	0.6697	0.0117	1.864	0.01%	1.010	10.58	1.145	19.67
5/8/2018	5/8/2017	5/7/2018	247	0.6724	0.6697	0.0116	1.873	0.01%	1.009	10.60	1.145	19.71
5/9/2018	5/9/2017	5/8/2018	247	0.6734	0.6707	0.0116	1.879	0.01%	1.009	10.62	1.142	19.76
5/10/2018	5/10/2017	5/9/2018	247	0.6783	0.6756	0.0116	1.873	0.01%	1.020	10.81	1.149	19.94
5/11/2018	5/11/2017	5/10/2018	247	0.6791	0.6765	0.0115	1.878	0.00%	1.019	10.85	1.155	19.97
5/14/2018	5/14/2017	5/13/2018	246	0.6801	0.6775	0.0115	1.862	0.00%	1.020	10.85	1.155	19.98
5/15/2018	5/15/2017	5/14/2018	247	0.6795	0.6769	0.0116	1.856	0.01%	1.020	10.84	1.157	20.00
5/16/2018	5/16/2017	5/15/2018	247	0.6815	0.6789	0.0115	1.861	0.02%	1.018	10.87	1.157	20.10
5/17/2018	5/17/2017	5/16/2018	247	0.6822	0.6796	0.0115	1.860	0.02%	1.018	10.88	1.158	20.13
5/18/2018	5/18/2017	5/17/2018	247	0.6840	0.6814	0.0115	1.860	0.03%	1.019	10.76	1.163	20.31
5/21/2018	5/21/2017	5/20/2018	246	0.6814	0.6788	0.0116	1.851	0.03%	1.013	10.66	1.162	20.15
5/22/2018	5/22/2017	5/21/2018	247	0.6812	0.6786	0.0115	1.855	0.03%	1.014	10.69	1.161	20.18

Exhibit 11A**Apache Corporation****Rolling Regression Model Results**

Date	Control Period Begin	Control Period End	Num Obs	Model R2	Model Adjusted R2	Standard Error	Durbin Watson	Intercept	Market ¹		Industry Residual ²	
									Coefficient	t Statistic	Coefficient	t Statistic
5/23/2018	5/23/2017	5/22/2018	247	0.6833	0.6807	0.0115	1.858	0.03%	1.028	10.87	1.158	20.21
5/24/2018	5/24/2017	5/23/2018	247	0.6839	0.6813	0.0115	1.858	0.02%	1.025	10.84	1.159	20.26
5/25/2018	5/25/2017	5/24/2018	247	0.6859	0.6833	0.0115	1.849	0.01%	1.031	10.89	1.165	20.35
5/29/2018	5/29/2017	5/28/2018	246	0.6856	0.6830	0.0116	1.835	0.01%	1.053	11.07	1.166	20.18
5/30/2018	5/30/2017	5/29/2018	247	0.6857	0.6832	0.0116	1.840	0.01%	1.049	11.10	1.166	20.23
5/31/2018	5/31/2017	5/30/2018	247	0.6918	0.6893	0.0115	1.835	0.03%	1.072	11.43	1.175	20.43
6/1/2018	6/1/2017	5/31/2018	247	0.6931	0.6906	0.0115	1.834	0.03%	1.076	11.51	1.174	20.46
6/4/2018	6/4/2017	6/3/2018	246	0.6907	0.6881	0.0116	1.816	0.02%	1.051	11.17	1.190	20.44
6/5/2018	6/5/2017	6/4/2018	247	0.6858	0.6832	0.0117	1.861	0.02%	1.052	11.11	1.179	20.23
6/6/2018	6/6/2017	6/5/2018	247	0.6846	0.6820	0.0117	1.856	0.02%	1.051	11.08	1.177	20.17
6/7/2018	6/7/2017	6/6/2018	247	0.6834	0.6808	0.0117	1.862	0.01%	1.057	11.18	1.173	20.04
6/8/2018	6/8/2017	6/7/2018	247	0.6825	0.6799	0.0118	1.849	0.04%	1.055	11.03	1.200	20.07
6/11/2018	6/11/2017	6/10/2018	246	0.6805	0.6778	0.0118	1.838	0.03%	1.060	11.05	1.208	19.88
6/12/2018	6/12/2017	6/11/2018	247	0.6691	0.6664	0.0122	1.752	0.05%	1.061	10.75	1.216	19.44
6/13/2018	6/13/2017	6/12/2018	247	0.6603	0.6575	0.0125	1.879	0.03%	1.058	10.49	1.219	19.08
6/14/2018	6/14/2017	6/13/2018	247	0.6590	0.6562	0.0125	1.941	0.04%	1.050	10.40	1.221	19.06
6/15/2018	6/15/2017	6/14/2018	247	0.6560	0.6532	0.0125	1.924	0.04%	1.045	10.35	1.219	18.93
6/18/2018	6/18/2017	6/17/2018	246	0.6639	0.6612	0.0123	1.975	0.01%	1.049	10.50	1.217	19.23
6/19/2018	6/19/2017	6/18/2018	247	0.6661	0.6633	0.0123	1.974	0.03%	1.044	10.47	1.220	19.42
6/20/2018	6/20/2017	6/19/2018	247	0.6691	0.6664	0.0123	1.922	0.04%	1.041	10.47	1.231	19.59
6/21/2018	6/21/2017	6/20/2018	247	0.6703	0.6676	0.0123	1.922	0.07%	1.028	10.29	1.242	19.75
6/22/2018	6/22/2017	6/21/2018	247	0.6701	0.6674	0.0123	1.953	0.08%	1.035	10.42	1.230	19.67
6/25/2018	6/25/2017	6/24/2018	246	0.6607	0.6579	0.0125	1.927	0.08%	1.035	10.26	1.204	19.18
6/26/2018	6/26/2017	6/25/2018	247	0.6641	0.6614	0.0124	1.938	0.07%	1.056	10.55	1.207	19.27
6/27/2018	6/27/2017	6/26/2018	247	0.6658	0.6631	0.0124	1.940	0.08%	1.059	10.57	1.206	19.35
6/28/2018	6/28/2017	6/27/2018	247	0.6694	0.6667	0.0124	1.939	0.09%	1.035	10.33	1.213	19.68
6/29/2018	6/29/2017	6/28/2018	247	0.6693	0.6666	0.0124	1.920	0.09%	1.027	10.25	1.211	19.72
7/2/2018	7/2/2017	7/1/2018	246	0.6717	0.6690	0.0124	1.915	0.09%	1.036	10.32	1.222	19.77
7/3/2018	7/3/2017	7/2/2018	247	0.6735	0.6708	0.0125	1.917	0.07%	1.028	10.20	1.233	19.98
7/5/2018	7/5/2017	7/4/2018	247	0.6716	0.6689	0.0125	1.939	0.07%	1.014	10.05	1.238	19.95
7/6/2018	7/6/2017	7/5/2018	247	0.6656	0.6628	0.0125	1.916	0.08%	1.018	10.07	1.234	19.60
7/9/2018	7/9/2017	7/8/2018	246	0.6627	0.6599	0.0125	1.902	0.11%	1.008	9.97	1.228	19.44
7/10/2018	7/10/2017	7/9/2018	247	0.6648	0.6621	0.0125	1.903	0.11%	1.020	10.12	1.230	19.53
7/11/2018	7/11/2017	7/10/2018	247	0.6679	0.6652	0.0124	1.908	0.10%	1.019	10.25	1.223	19.64
7/12/2018	7/12/2017	7/11/2018	247	0.6692	0.6665	0.0124	1.898	0.09%	1.026	10.33	1.220	19.67
7/13/2018	7/13/2017	7/12/2018	247	0.6687	0.6660	0.0124	1.905	0.08%	1.014	10.20	1.225	19.71
7/16/2018	7/16/2017	7/15/2018	246	0.6683	0.6656	0.0124	1.908	0.08%	1.013	10.17	1.224	19.65
7/17/2018	7/17/2017	7/16/2018	247	0.6707	0.6680	0.0124	1.906	0.07%	1.016	10.21	1.228	19.82
7/18/2018	7/18/2017	7/17/2018	247	0.6709	0.6682	0.0124	1.899	0.06%	1.012	10.16	1.230	19.85
7/19/2018	7/19/2017	7/18/2018	247	0.6687	0.6660	0.0124	1.871	0.06%	1.010	10.11	1.229	19.76
7/20/2018	7/20/2017	7/19/2018	247	0.6646	0.6619	0.0124	1.891	0.04%	0.994	10.00	1.219	19.58
7/23/2018	7/23/2017	7/22/2018	246	0.6637	0.6609	0.0124	1.889	0.06%	0.992	9.97	1.219	19.49
7/24/2018	7/24/2017	7/23/2018	247	0.6637	0.6609	0.0124	1.890	0.06%	0.992	9.99	1.219	19.54

Exhibit 11A**Apache Corporation****Rolling Regression Model Results**

Date	Control Period Begin	Control Period End	Num Obs	Model R2	Model Adjusted R2	Standard Error	Durbin Watson	Intercept	Market ¹		Industry Residual ²	
									Coefficient	t Statistic	Coefficient	t Statistic
7/25/2018	7/25/2017	7/24/2018	247	0.6648	0.6621	0.0124	1.894	0.06%	0.994	10.03	1.218	19.58
7/26/2018	7/26/2017	7/25/2018	247	0.6656	0.6629	0.0123	1.895	0.06%	0.994	10.07	1.225	19.60
7/27/2018	7/27/2017	7/26/2018	247	0.6658	0.6631	0.0123	1.897	0.06%	0.994	10.07	1.226	19.62
7/30/2018	7/30/2017	7/29/2018	246	0.6647	0.6620	0.0123	1.897	0.05%	1.000	10.14	1.223	19.47
7/31/2018	7/31/2017	7/30/2018	247	0.6657	0.6630	0.0123	1.896	0.06%	0.989	10.05	1.226	19.62
8/1/2018	8/1/2017	7/31/2018	247	0.6653	0.6626	0.0123	1.896	0.06%	0.986	10.02	1.224	19.61
8/2/2018	8/2/2017	8/1/2018	247	0.6662	0.6635	0.0123	1.894	0.06%	0.991	10.07	1.222	19.64
8/3/2018	8/3/2017	8/2/2018	246	0.6656	0.6629	0.0123	1.896	0.07%	0.991	10.06	1.225	19.56
8/6/2018	8/6/2017	8/5/2018	246	0.6488	0.6459	0.0126	1.854	0.06%	0.992	9.85	1.195	18.76
8/7/2018	8/7/2017	8/6/2018	247	0.6490	0.6461	0.0126	1.893	0.06%	0.993	9.88	1.195	18.80
8/8/2018	8/8/2017	8/7/2018	247	0.6463	0.6434	0.0126	1.872	0.08%	0.996	9.88	1.197	18.66
8/9/2018	8/9/2017	8/8/2018	247	0.6482	0.6453	0.0126	1.881	0.08%	0.996	9.90	1.198	18.75
8/10/2018	8/10/2017	8/9/2018	247	0.6317	0.6287	0.0131	1.855	0.06%	1.002	9.58	1.202	18.08
8/13/2018	8/13/2017	8/12/2018	246	0.6303	0.6273	0.0132	1.961	0.08%	0.982	9.30	1.205	18.10
8/14/2018	8/14/2017	8/13/2018	247	0.6306	0.6276	0.0131	1.961	0.07%	0.984	9.35	1.204	18.14
8/15/2018	8/15/2017	8/14/2018	247	0.6290	0.6260	0.0131	1.961	0.08%	1.001	9.49	1.201	17.99
8/16/2018	8/16/2017	8/15/2018	247	0.6325	0.6294	0.0132	1.957	0.07%	1.020	9.65	1.179	18.07
8/17/2018	8/17/2017	8/16/2018	247	0.6304	0.6273	0.0132	1.969	0.07%	1.020	9.66	1.177	17.97
8/20/2018	8/20/2017	8/19/2018	246	0.6290	0.6259	0.0132	1.966	0.07%	1.017	9.53	1.177	17.92
8/21/2018	8/21/2017	8/20/2018	247	0.6287	0.6257	0.0132	1.964	0.07%	1.017	9.55	1.177	17.94
8/22/2018	8/22/2017	8/21/2018	247	0.6281	0.6250	0.0132	1.967	0.08%	1.018	9.57	1.175	17.90
8/23/2018	8/23/2017	8/22/2018	247	0.6282	0.6251	0.0132	1.969	0.09%	1.018	9.54	1.173	17.92
8/24/2018	8/24/2017	8/23/2018	247	0.6284	0.6254	0.0132	1.969	0.08%	1.023	9.58	1.175	17.92
8/27/2018	8/27/2017	8/26/2018	246	0.6284	0.6254	0.0132	1.969	0.08%	1.025	9.58	1.175	17.87
8/28/2018	8/28/2017	8/27/2018	247	0.6285	0.6254	0.0132	1.971	0.08%	1.024	9.60	1.175	17.90
8/29/2018	8/29/2017	8/28/2018	247	0.6273	0.6243	0.0133	1.966	0.08%	1.024	9.58	1.176	17.86
8/30/2018	8/30/2017	8/29/2018	247	0.6279	0.6248	0.0133	1.978	0.09%	1.029	9.64	1.177	17.85
8/31/2018	8/31/2017	8/30/2018	247	0.6290	0.6260	0.0132	1.979	0.11%	1.029	9.65	1.178	17.91
9/4/2018	9/4/2017	9/3/2018	246	0.6282	0.6251	0.0133	1.985	0.09%	1.026	9.59	1.179	17.85
9/5/2018	9/5/2017	9/4/2018	247	0.6291	0.6260	0.0132	1.986	0.09%	1.028	9.63	1.179	17.92
9/6/2018	9/6/2017	9/5/2018	247	0.6279	0.6248	0.0133	1.981	0.09%	1.027	9.58	1.182	17.89
9/7/2018	9/7/2017	9/6/2018	247	0.6300	0.6270	0.0133	1.978	0.08%	1.031	9.62	1.182	17.97
9/10/2018	9/10/2017	9/9/2018	246	0.6266	0.6235	0.0133	1.975	0.09%	1.026	9.57	1.178	17.78
9/11/2018	9/11/2017	9/10/2018	247	0.6262	0.6232	0.0133	1.972	0.09%	1.027	9.59	1.178	17.80
9/12/2018	9/12/2017	9/11/2018	247	0.6267	0.6236	0.0133	1.971	0.10%	1.030	9.59	1.179	17.82
9/13/2018	9/13/2017	9/12/2018	247	0.6263	0.6232	0.0133	1.968	0.10%	1.026	9.54	1.180	17.83
9/14/2018	9/14/2017	9/13/2018	247	0.6200	0.6169	0.0133	1.966	0.08%	1.020	9.48	1.173	17.56
9/17/2018	9/17/2017	9/16/2018	246	0.6214	0.6183	0.0133	1.979	0.08%	1.019	9.46	1.179	17.59
9/18/2018	9/18/2017	9/17/2018	247	0.6215	0.6184	0.0133	1.981	0.09%	1.014	9.44	1.179	17.65
9/19/2018	9/19/2017	9/18/2018	247	0.6223	0.6192	0.0133	1.986	0.09%	1.016	9.47	1.179	17.67
9/20/2018	9/20/2017	9/19/2018	247	0.6239	0.6209	0.0132	1.984	0.10%	1.017	9.51	1.179	17.73
9/21/2018	9/21/2017	9/20/2018	247	0.6217	0.6186	0.0133	1.975	0.08%	1.001	9.36	1.181	17.70
9/24/2018	9/24/2017	9/23/2018	246	0.6222	0.6191	0.0133	1.975	0.08%	1.003	9.36	1.183	17.68

Exhibit 11A**Apache Corporation****Rolling Regression Model Results**

Date	Control Period Begin	Control Period End	Num Obs	Model R2	Model Adjusted R2	Standard Error	Durbin Watson	Intercept	Market ¹		Industry Residual ²	
									Coefficient	t Statistic	Coefficient	t Statistic
9/25/2018	9/25/2017	9/24/2018	247	0.6248	0.6217	0.0133	1.976	0.09%	0.993	9.29	1.188	17.89
9/26/2018	9/26/2017	9/25/2018	247	0.6216	0.6185	0.0133	1.981	0.08%	0.999	9.34	1.182	17.71
9/27/2018	9/27/2017	9/26/2018	247	0.6233	0.6202	0.0132	1.987	0.07%	1.002	9.40	1.180	17.76
9/28/2018	9/28/2017	9/27/2018	247	0.6233	0.6202	0.0132	1.987	0.07%	1.002	9.40	1.180	17.76
10/1/2018	10/1/2017	9/30/2018	246	0.6229	0.6198	0.0132	1.985	0.07%	1.003	9.39	1.180	17.70
10/2/2018	10/2/2017	10/1/2018	247	0.6228	0.6197	0.0132	1.983	0.08%	1.005	9.42	1.176	17.72
10/3/2018	10/3/2017	10/2/2018	247	0.6225	0.6194	0.0132	1.988	0.08%	1.006	9.42	1.175	17.70
10/4/2018	10/4/2017	10/3/2018	247	0.6219	0.6188	0.0132	1.993	0.09%	1.007	9.43	1.174	17.68
10/5/2018	10/5/2017	10/4/2018	247	0.6221	0.6190	0.0132	1.989	0.09%	1.008	9.46	1.173	17.67
10/8/2018	10/8/2017	10/7/2018	246	0.6197	0.6166	0.0133	1.979	0.09%	1.006	9.41	1.170	17.53
10/9/2018	10/9/2017	10/8/2018	247	0.6192	0.6161	0.0133	1.990	0.09%	1.006	9.42	1.168	17.55
10/10/2018	10/10/2017	10/9/2018	247	0.6223	0.6193	0.0133	1.978	0.10%	1.006	9.44	1.171	17.69
10/11/2018	10/11/2017	10/10/2018	248	0.6334	0.6304	0.0132	1.985	0.08%	1.060	10.30	1.174	17.81
10/12/2018	10/12/2017	10/11/2018	248	0.6394	0.6364	0.0132	1.996	0.08%	1.082	10.68	1.175	17.90
10/15/2018	10/15/2017	10/14/2018	247	0.6399	0.6370	0.0132	1.992	0.08%	1.076	10.68	1.175	17.88
10/16/2018	10/16/2017	10/15/2018	248	0.6387	0.6358	0.0132	1.988	0.08%	1.079	10.71	1.173	17.84
10/17/2018	10/17/2017	10/16/2018	248	0.6398	0.6369	0.0132	1.993	0.06%	1.047	10.57	1.173	17.98
10/18/2018	10/18/2017	10/17/2018	248	0.6419	0.6389	0.0132	1.990	0.05%	1.048	10.58	1.177	18.09
10/19/2018	10/19/2017	10/18/2018	248	0.6423	0.6394	0.0132	1.985	0.05%	1.054	10.69	1.176	18.05
10/22/2018	10/22/2017	10/21/2018	247	0.6443	0.6414	0.0132	2.005	0.06%	1.058	10.74	1.176	18.07
10/23/2018	10/23/2017	10/22/2018	248	0.6454	0.6425	0.0131	2.008	0.05%	1.062	10.81	1.177	18.14
10/24/2018	10/24/2017	10/23/2018	248	0.6501	0.6472	0.0131	2.020	0.05%	1.066	10.90	1.171	18.34
10/25/2018	10/25/2017	10/24/2018	248	0.6558	0.6530	0.0131	2.014	0.05%	1.088	11.42	1.167	18.34
10/26/2018	10/26/2017	10/25/2018	248	0.6546	0.6517	0.0131	2.013	0.05%	1.070	11.32	1.168	18.34
10/29/2018	10/29/2017	10/28/2018	247	0.6524	0.6496	0.0131	2.005	0.04%	1.064	11.28	1.164	18.19
10/30/2018	10/30/2017	10/29/2018	248	0.6552	0.6524	0.0131	2.012	0.03%	1.072	11.41	1.160	18.32
10/31/2018	10/31/2017	10/30/2018	248	0.6587	0.6560	0.0131	2.011	0.03%	1.087	11.64	1.162	18.37
11/1/2018	11/1/2017	10/31/2018	248	0.6580	0.6552	0.0131	2.006	0.03%	1.086	11.64	1.159	18.32
11/2/2018	11/2/2017	11/1/2018	247	0.6573	0.6545	0.0132	2.001	0.02%	1.085	11.61	1.163	18.25
11/5/2018	11/5/2017	11/4/2018	247	0.6547	0.6519	0.0132	1.982	0.01%	1.083	11.59	1.154	18.12
11/6/2018	11/6/2017	11/5/2018	248	0.6586	0.6558	0.0132	1.973	0.02%	1.094	11.70	1.161	18.32
11/7/2018	11/7/2017	11/6/2018	248	0.6532	0.6504	0.0130	1.991	-0.01%	1.086	11.77	1.138	17.97
11/8/2018	11/8/2017	11/7/2018	248	0.6521	0.6493	0.0130	1.981	-0.01%	1.075	11.76	1.136	17.92
11/9/2018	11/9/2017	11/8/2018	248	0.6571	0.6543	0.0131	1.974	-0.02%	1.081	11.81	1.143	18.16
11/12/2018	11/12/2017	11/11/2018	247	0.6557	0.6529	0.0131	1.970	0.00%	1.066	11.62	1.146	18.16
11/13/2018	11/13/2017	11/12/2018	248	0.6574	0.6546	0.0131	1.971	-0.01%	1.073	11.82	1.144	18.18
11/14/2018	11/14/2017	11/13/2018	248	0.6583	0.6555	0.0131	1.972	-0.01%	1.075	11.85	1.142	18.21
11/15/2018	11/15/2017	11/14/2018	248	0.6518	0.6490	0.0132	1.956	0.02%	1.059	11.61	1.145	17.99
11/16/2018	11/16/2017	11/15/2018	248	0.6525	0.6497	0.0132	1.972	0.03%	1.061	11.67	1.143	18.00
11/19/2018	11/19/2017	11/18/2018	247	0.6528	0.6499	0.0132	1.972	0.04%	1.074	11.78	1.138	17.89
11/20/2018	11/20/2017	11/19/2018	248	0.6482	0.6453	0.0133	1.957	0.03%	1.079	11.84	1.126	17.65
11/21/2018	11/21/2017	11/20/2018	248	0.6556	0.6527	0.0133	1.967	0.02%	1.106	12.23	1.130	17.80
11/23/2018	11/23/2017	11/22/2018	247	0.6598	0.6571	0.0133	1.968	0.03%	1.111	12.25	1.139	17.98

Exhibit 11A**Apache Corporation****Rolling Regression Model Results**

Date	Control Period Begin	Control Period End	Num Obs	Model R2	Model Adjusted R2	Standard Error	Durbin Watson	Intercept	Market ¹		Industry Residual ²	
									Coefficient	t Statistic	Coefficient	t Statistic
11/26/2018	11/26/2017	11/25/2018	247	0.6625	0.6597	0.0133	1.967	0.03%	1.120	12.36	1.130	18.06
11/27/2018	11/27/2017	11/26/2018	248	0.6630	0.6602	0.0133	1.970	0.03%	1.117	12.43	1.130	18.10
11/28/2018	11/28/2017	11/27/2018	248	0.6610	0.6582	0.0133	1.970	0.03%	1.115	12.42	1.127	17.99
11/29/2018	11/29/2017	11/28/2018	248	0.6604	0.6577	0.0133	1.966	0.03%	1.094	12.29	1.129	18.04
11/30/2018	11/30/2017	11/29/2018	248	0.6600	0.6572	0.0133	1.963	0.03%	1.093	12.28	1.126	18.02
12/3/2018	12/3/2017	12/2/2018	247	0.6661	0.6634	0.0130	1.964	-0.01%	1.085	12.46	1.111	18.21
12/4/2018	12/4/2017	12/3/2018	248	0.6698	0.6671	0.0130	1.963	0.00%	1.098	12.66	1.107	18.35
12/6/2018	12/6/2017	12/5/2018	247	0.6746	0.6719	0.0129	1.983	0.01%	1.099	13.02	1.104	18.34
12/7/2018	12/7/2017	12/6/2018	247	0.6741	0.6714	0.0129	1.985	0.02%	1.101	13.04	1.102	18.29
12/10/2018	12/10/2017	12/9/2018	246	0.6709	0.6682	0.0130	1.971	0.02%	1.103	13.08	1.089	18.01
12/11/2018	12/11/2017	12/10/2018	247	0.6703	0.6676	0.0132	1.923	0.00%	1.099	12.90	1.103	18.15
12/12/2018	12/12/2017	12/11/2018	247	0.6698	0.6671	0.0132	1.912	-0.01%	1.102	12.90	1.104	18.12
12/13/2018	12/13/2017	12/12/2018	247	0.6688	0.6661	0.0132	1.940	0.01%	1.107	12.93	1.103	18.04
12/14/2018	12/14/2017	12/13/2018	247	0.6693	0.6666	0.0132	1.945	0.01%	1.107	12.94	1.104	18.07
12/17/2018	12/17/2017	12/16/2018	246	0.6731	0.6704	0.0132	1.940	0.01%	1.119	13.15	1.109	18.09
12/18/2018	12/18/2017	12/17/2018	247	0.6671	0.6644	0.0133	1.921	0.01%	1.102	12.97	1.105	17.91
12/19/2018	12/19/2017	12/18/2018	247	0.6692	0.6665	0.0133	1.943	0.00%	1.100	12.94	1.107	18.06
12/20/2018	12/20/2017	12/19/2018	247	0.6692	0.6665	0.0133	1.942	-0.01%	1.102	13.01	1.106	18.01
12/21/2018	12/21/2017	12/20/2018	247	0.6714	0.6687	0.0134	1.911	-0.03%	1.129	13.29	1.117	17.94
12/24/2018	12/24/2017	12/23/2018	246	0.6698	0.6671	0.0134	1.927	-0.05%	1.119	13.34	1.108	17.75
12/26/2018	12/26/2017	12/25/2018	247	0.6736	0.6710	0.0134	1.922	-0.05%	1.132	13.69	1.104	17.78
12/27/2018	12/27/2017	12/26/2018	247	0.6816	0.6789	0.0134	1.915	-0.05%	1.148	14.49	1.098	17.67
12/28/2018	12/28/2017	12/27/2018	247	0.6797	0.6771	0.0134	1.902	-0.06%	1.142	14.39	1.099	17.63
12/31/2018	12/31/2017	12/30/2018	246	0.6804	0.6777	0.0135	1.869	-0.06%	1.141	14.36	1.100	17.64
1/2/2019	1/2/2018	1/1/2019	247	0.6797	0.6771	0.0134	1.866	-0.06%	1.137	14.34	1.100	17.67
1/3/2019	1/3/2018	1/2/2019	247	0.6846	0.6820	0.0133	1.901	-0.07%	1.127	14.38	1.097	17.97
1/4/2019	1/4/2018	1/3/2019	247	0.6837	0.6811	0.0133	1.897	-0.06%	1.097	14.14	1.099	18.09
1/7/2019	1/7/2018	1/6/2019	246	0.6896	0.6870	0.0132	1.900	-0.06%	1.102	14.56	1.095	18.11
1/8/2019	1/8/2018	1/7/2019	247	0.6903	0.6878	0.0132	1.898	-0.06%	1.106	14.64	1.096	18.16
1/9/2019	1/9/2018	1/8/2019	247	0.6929	0.6904	0.0131	1.911	-0.05%	1.108	14.74	1.098	18.26
1/10/2019	1/10/2018	1/9/2019	247	0.6992	0.6967	0.0131	1.925	-0.02%	1.117	14.92	1.106	18.56
1/11/2019	1/11/2018	1/10/2019	247	0.6990	0.6965	0.0131	1.932	-0.02%	1.116	14.92	1.105	18.55
1/14/2019	1/14/2018	1/13/2019	246	0.6927	0.6902	0.0131	1.945	-0.04%	1.103	14.68	1.090	18.23
1/15/2019	1/15/2018	1/14/2019	247	0.6919	0.6894	0.0131	1.937	-0.03%	1.100	14.64	1.092	18.27
1/16/2019	1/16/2018	1/15/2019	248	0.6920	0.6895	0.0131	1.941	-0.03%	1.098	14.67	1.092	18.31
1/17/2019	1/17/2018	1/16/2019	248	0.6903	0.6877	0.0131	1.936	-0.03%	1.095	14.59	1.093	18.25
1/18/2019	1/18/2018	1/17/2019	248	0.6907	0.6882	0.0131	1.942	-0.03%	1.098	14.63	1.094	18.25
1/22/2019	1/22/2018	1/21/2019	247	0.6917	0.6891	0.0131	1.938	-0.02%	1.103	14.70	1.093	18.20
1/23/2019	1/23/2018	1/22/2019	247	0.6877	0.6852	0.0132	1.925	-0.03%	1.097	14.61	1.084	18.00
1/24/2019	1/24/2018	1/23/2019	247	0.6880	0.6855	0.0132	1.937	-0.04%	1.095	14.58	1.085	18.04
1/25/2019	1/25/2018	1/24/2019	247	0.6865	0.6840	0.0132	1.935	-0.03%	1.097	14.53	1.087	17.98
1/28/2019	1/28/2018	1/27/2019	246	0.6855	0.6829	0.0133	1.938	-0.03%	1.096	14.47	1.087	17.90
1/29/2019	1/29/2018	1/28/2019	247	0.6817	0.6791	0.0133	1.938	-0.02%	1.092	14.37	1.083	17.78

Exhibit 11A**Apache Corporation****Rolling Regression Model Results**

Date	Control Period Begin	Control Period End	Num Obs	Model R2	Model Adjusted R2	Standard Error	Durbin Watson	Intercept	Market ¹		Industry Residual ²	
									Coefficient	t Statistic	Coefficient	t Statistic
1/30/2019	1/30/2018	1/29/2019	247	0.6807	0.6780	0.0133	1.934	0.00%	1.086	14.27	1.084	17.79
1/31/2019	1/31/2018	1/30/2019	247	0.6789	0.6763	0.0133	1.943	0.01%	1.071	14.17	1.079	17.75
2/1/2019	2/1/2018	1/31/2019	247	0.6772	0.6746	0.0133	1.921	-0.01%	1.063	14.03	1.082	17.75
2/4/2019	2/4/2018	2/3/2019	246	0.6737	0.6710	0.0134	1.920	0.00%	1.050	13.74	1.082	17.69
2/5/2019	2/5/2018	2/4/2019	247	0.6741	0.6714	0.0133	1.928	0.00%	1.052	13.79	1.083	17.73
2/6/2019	2/6/2018	2/5/2019	247	0.6707	0.6680	0.0133	1.923	0.00%	1.048	13.39	1.085	17.82
2/7/2019	2/7/2018	2/6/2019	247	0.6713	0.6686	0.0133	1.906	-0.01%	1.058	13.42	1.090	17.84
2/8/2019	2/8/2018	2/7/2019	247	0.6751	0.6725	0.0133	1.922	-0.01%	1.063	13.56	1.087	17.98
2/11/2019	2/11/2018	2/10/2019	246	0.6699	0.6672	0.0133	1.914	0.00%	1.070	13.22	1.090	17.85
2/12/2019	2/12/2018	2/11/2019	247	0.6706	0.6679	0.0133	1.917	0.00%	1.070	13.25	1.089	17.92
2/13/2019	2/13/2018	2/12/2019	247	0.6698	0.6671	0.0133	1.918	0.00%	1.071	13.23	1.091	17.89
2/14/2019	2/14/2018	2/13/2019	247	0.6698	0.6671	0.0134	1.884	0.02%	1.076	13.22	1.096	17.89
2/15/2019	2/15/2018	2/14/2019	247	0.6755	0.6729	0.0132	1.911	0.03%	1.075	13.29	1.110	18.20
2/19/2019	2/19/2018	2/18/2019	246	0.6765	0.6738	0.0133	1.909	0.04%	1.085	13.39	1.110	18.14
2/20/2019	2/20/2018	2/19/2019	247	0.6764	0.6737	0.0132	1.909	0.04%	1.085	13.41	1.110	18.17
2/21/2019	2/21/2018	2/20/2019	247	0.6753	0.6726	0.0133	1.903	0.04%	1.088	13.41	1.110	18.10
2/22/2019	2/22/2018	2/21/2019	247	0.6720	0.6693	0.0133	1.892	0.05%	1.085	13.33	1.103	17.95
2/25/2019	2/25/2018	2/24/2019	247	0.6692	0.6665	0.0133	1.895	0.04%	1.073	13.13	1.101	17.92
2/26/2019	2/26/2018	2/25/2019	248	0.6692	0.6665	0.0133	1.895	0.04%	1.072	13.16	1.101	17.96
2/27/2019	2/27/2018	2/26/2019	248	0.6692	0.6665	0.0133	1.893	0.04%	1.080	13.22	1.101	17.92
2/28/2019	2/28/2018	2/27/2019	248	0.6679	0.6652	0.0133	1.888	0.05%	1.071	13.08	1.100	17.93
3/1/2019	3/1/2018	2/28/2019	247	0.6678	0.6650	0.0133	1.892	0.05%	1.067	13.00	1.104	17.93
3/4/2019	3/4/2018	3/3/2019	246	0.6689	0.6662	0.0133	1.892	0.05%	1.079	13.08	1.104	17.89
3/5/2019	3/5/2018	3/4/2019	247	0.6667	0.6640	0.0133	1.890	0.05%	1.080	13.07	1.099	17.81
3/6/2019	3/6/2018	3/5/2019	247	0.6651	0.6623	0.0133	1.901	0.05%	1.080	13.01	1.097	17.75
3/7/2019	3/7/2018	3/6/2019	247	0.6682	0.6655	0.0133	1.897	0.04%	1.086	13.11	1.101	17.87
3/8/2019	3/8/2018	3/7/2019	247	0.6646	0.6618	0.0134	1.880	0.06%	1.077	12.97	1.099	17.76
3/11/2019	3/11/2018	3/10/2019	246	0.6708	0.6680	0.0134	1.887	0.04%	1.086	13.01	1.102	18.05
3/12/2019	3/12/2018	3/11/2019	247	0.6706	0.6679	0.0134	1.886	0.05%	1.091	13.12	1.100	18.02
3/13/2019	3/13/2018	3/12/2019	247	0.6712	0.6685	0.0134	1.878	0.06%	1.094	13.13	1.103	18.05
3/14/2019	3/14/2018	3/13/2019	247	0.6727	0.6700	0.0134	1.886	0.06%	1.099	13.20	1.103	18.09
3/15/2019	3/15/2018	3/14/2019	247	0.6726	0.6699	0.0134	1.887	0.05%	1.101	13.22	1.103	18.07
3/18/2019	3/18/2018	3/17/2019	246	0.6717	0.6690	0.0134	1.892	0.05%	1.100	13.19	1.101	17.98
3/19/2019	3/19/2018	3/18/2019	247	0.6722	0.6695	0.0134	1.893	0.05%	1.101	13.24	1.100	18.03
3/20/2019	3/20/2018	3/19/2019	247	0.6715	0.6688	0.0134	1.890	0.05%	1.101	13.17	1.102	18.04
3/21/2019	3/21/2018	3/20/2019	247	0.6718	0.6691	0.0134	1.891	0.05%	1.097	13.12	1.100	18.09
3/22/2019	3/22/2018	3/21/2019	247	0.6651	0.6624	0.0134	1.885	0.03%	1.105	13.22	1.095	17.61
3/25/2019	3/25/2018	3/24/2019	246	0.6714	0.6687	0.0134	1.897	0.02%	1.135	13.45	1.114	17.77
3/26/2019	3/26/2018	3/25/2019	247	0.6713	0.6686	0.0133	1.897	0.02%	1.135	13.47	1.113	17.80
3/27/2019	3/27/2018	3/26/2019	247	0.6726	0.6699	0.0133	1.890	0.03%	1.165	13.65	1.109	17.75
3/28/2019	3/28/2018	3/27/2019	247	0.6733	0.6706	0.0133	1.897	0.02%	1.186	13.81	1.105	17.67
3/29/2019	3/29/2018	3/28/2019	247	0.6765	0.6738	0.0133	1.913	0.02%	1.186	13.87	1.114	17.83
4/1/2019	4/1/2018	3/31/2019	247	0.6750	0.6724	0.0133	1.912	0.00%	1.173	13.69	1.115	17.87

Exhibit 11A**Apache Corporation****Rolling Regression Model Results**

Date	Control Period Begin	Control Period End	Num Obs	Model R2	Model Adjusted R2	Standard Error	Durbin Watson	Intercept	Market ¹		Industry Residual ²	
									Coefficient	t Statistic	Coefficient	t Statistic
4/2/2019	4/2/2018	4/1/2019	248	0.6751	0.6725	0.0132	1.911	0.00%	1.170	13.72	1.115	17.91
4/3/2019	4/3/2018	4/2/2019	248	0.6771	0.6745	0.0132	1.891	-0.01%	1.181	13.74	1.118	18.03
4/4/2019	4/4/2018	4/3/2019	248	0.6820	0.6794	0.0132	1.877	-0.02%	1.185	13.78	1.129	18.32
4/5/2019	4/5/2018	4/4/2019	248	0.6830	0.6804	0.0131	1.885	-0.02%	1.190	13.81	1.134	18.36
4/8/2019	4/8/2018	4/7/2019	247	0.6858	0.6832	0.0133	1.845	0.00%	1.214	13.77	1.152	18.52
4/9/2019	4/9/2018	4/8/2019	248	0.6852	0.6827	0.0133	1.881	0.00%	1.214	13.78	1.151	18.53
4/10/2019	4/10/2018	4/9/2019	248	0.6868	0.6842	0.0133	1.883	-0.01%	1.218	13.85	1.152	18.59
4/11/2019	4/11/2018	4/10/2019	248	0.6899	0.6873	0.0132	1.904	0.00%	1.220	13.85	1.165	18.79
4/12/2019	4/12/2018	4/11/2019	248	0.6907	0.6881	0.0132	1.906	-0.01%	1.224	13.91	1.171	18.80
4/15/2019	4/15/2018	4/14/2019	247	0.6654	0.6626	0.0137	1.869	-0.01%	1.239	13.53	1.082	17.38
4/16/2019	4/16/2018	4/15/2019	248	0.6659	0.6632	0.0137	1.928	-0.02%	1.240	13.56	1.083	17.45
4/17/2019	4/17/2018	4/16/2019	248	0.6658	0.6631	0.0137	1.925	-0.01%	1.242	13.55	1.084	17.45
4/18/2019	4/18/2018	4/17/2019	248	0.6658	0.6631	0.0137	1.925	0.00%	1.241	13.51	1.086	17.48
4/22/2019	4/22/2018	4/21/2019	246	0.6628	0.6600	0.0138	1.913	-0.02%	1.237	13.38	1.082	17.28
4/23/2019	4/23/2018	4/22/2019	247	0.6650	0.6622	0.0138	1.935	-0.01%	1.238	13.41	1.086	17.45
4/24/2019	4/24/2018	4/23/2019	246	0.6651	0.6623	0.0138	1.933	-0.01%	1.238	13.38	1.086	17.42
4/25/2019	4/25/2018	4/24/2019	245	0.6651	0.6623	0.0138	1.935	-0.01%	1.235	13.29	1.088	17.43
4/26/2019	4/26/2018	4/25/2019	244	0.6649	0.6622	0.0138	1.927	-0.01%	1.234	13.26	1.089	17.39
4/29/2019	4/29/2018	4/28/2019	242	0.6676	0.6648	0.0138	1.939	0.00%	1.242	13.32	1.090	17.39
4/30/2019	4/30/2018	4/29/2019	243	0.6671	0.6643	0.0138	1.936	0.01%	1.242	13.34	1.089	17.40
5/1/2019	5/1/2018	4/30/2019	243	0.6664	0.6636	0.0138	1.937	-0.01%	1.253	13.44	1.087	17.28
5/2/2019	5/2/2018	5/1/2019	243	0.6693	0.6665	0.0138	1.923	-0.02%	1.265	13.58	1.089	17.36
5/3/2019	5/3/2018	5/2/2019	242	0.6710	0.6682	0.0138	1.938	-0.03%	1.273	13.67	1.086	17.34
5/6/2019	5/6/2018	5/5/2019	242	0.6726	0.6698	0.0137	1.944	-0.02%	1.275	13.69	1.090	17.42
5/7/2019	5/7/2018	5/6/2019	243	0.6727	0.6699	0.0137	1.946	-0.02%	1.272	13.70	1.090	17.48
5/8/2019	5/8/2018	5/7/2019	243	0.6729	0.6701	0.0137	1.946	-0.01%	1.263	13.69	1.090	17.50
5/9/2019	5/9/2018	5/8/2019	243	0.6699	0.6671	0.0138	1.938	-0.02%	1.263	13.64	1.083	17.35
5/10/2019	5/10/2018	5/9/2019	243	0.6672	0.6644	0.0138	1.955	-0.02%	1.254	13.49	1.082	17.30
5/13/2019	5/13/2018	5/12/2019	242	0.6670	0.6643	0.0138	1.956	-0.01%	1.256	13.46	1.083	17.25
5/14/2019	5/14/2018	5/13/2019	243	0.6663	0.6635	0.0139	1.953	-0.01%	1.260	13.64	1.075	17.12
5/15/2019	5/15/2018	5/14/2019	243	0.6674	0.6647	0.0139	1.976	-0.01%	1.266	13.73	1.075	17.12
5/16/2019	5/16/2018	5/15/2019	243	0.6674	0.6646	0.0139	1.977	-0.02%	1.270	13.76	1.075	17.09
5/17/2019	5/17/2018	5/16/2019	243	0.6670	0.6642	0.0139	1.975	-0.02%	1.266	13.74	1.075	17.09
5/20/2019	5/20/2018	5/19/2019	242	0.6653	0.6625	0.0139	1.968	-0.05%	1.273	13.77	1.073	16.90
5/21/2019	5/21/2018	5/20/2019	243	0.6635	0.6607	0.0139	1.956	-0.05%	1.275	13.78	1.069	16.83
5/22/2019	5/22/2018	5/21/2019	243	0.6652	0.6624	0.0139	1.970	-0.04%	1.282	13.86	1.072	16.87
5/23/2019	5/23/2018	5/22/2019	243	0.6665	0.6637	0.0140	1.972	-0.05%	1.284	13.85	1.077	16.96
5/24/2019	5/24/2018	5/23/2019	243	0.6742	0.6715	0.0140	1.967	-0.06%	1.311	14.16	1.084	17.20
5/28/2019	5/28/2018	5/27/2019	242	0.6704	0.6676	0.0139	1.981	-0.04%	1.303	14.11	1.072	16.94
5/29/2019	5/29/2018	5/28/2019	243	0.6696	0.6668	0.0139	1.975	-0.04%	1.304	14.15	1.069	16.91
5/30/2019	5/30/2018	5/29/2019	243	0.6696	0.6668	0.0139	1.973	-0.04%	1.309	14.17	1.070	16.90
5/31/2019	5/31/2018	5/30/2019	243	0.6662	0.6634	0.0139	1.973	-0.06%	1.291	13.94	1.065	16.87
6/3/2019	6/3/2018	6/2/2019	242	0.6692	0.6664	0.0139	1.946	-0.04%	1.300	14.12	1.060	16.85

Exhibit 11A

Apache Corporation

Rolling Regression Model Results

Date	Control Period Begin	Control Period End	Num Obs	Model R2	Model Adjusted R2	Standard Error	Durbin Watson	Intercept	Market ¹		Industry Residual ²	
									Coefficient	t Statistic	Coefficient	t Statistic
6/4/2019	6/4/2018	6/3/2019	243	0.6672	0.6644	0.0139	1.924	-0.02%	1.296	14.01	1.065	16.87
6/5/2019	6/5/2018	6/4/2019	243	0.6622	0.6594	0.0142	1.873	-0.01%	1.320	14.16	1.055	16.43
6/6/2019	6/6/2018	6/5/2019	243	0.6611	0.6583	0.0142	1.884	-0.02%	1.312	14.07	1.045	16.44
6/7/2019	6/7/2018	6/6/2019	243	0.6620	0.6592	0.0142	1.860	-0.01%	1.319	14.12	1.047	16.46
6/10/2019	6/10/2018	6/9/2019	242	0.6638	0.6610	0.0141	1.890	-0.04%	1.315	14.27	1.035	16.38
6/11/2019	6/11/2018	6/10/2019	243	0.6635	0.6607	0.0140	1.888	-0.04%	1.314	14.28	1.035	16.41
6/12/2019	6/12/2018	6/11/2019	243	0.6720	0.6693	0.0137	1.809	-0.07%	1.311	14.61	1.027	16.68
6/13/2019	6/13/2018	6/12/2019	243	0.6811	0.6784	0.0135	1.812	-0.06%	1.317	14.92	1.029	17.03
6/14/2019	6/14/2018	6/13/2019	243	0.6818	0.6792	0.0134	1.817	-0.06%	1.322	14.99	1.026	17.01
6/17/2019	6/17/2018	6/16/2019	242	0.6794	0.6767	0.0135	1.807	-0.06%	1.324	14.93	1.032	16.84
6/18/2019	6/18/2018	6/17/2019	243	0.6798	0.6771	0.0135	1.815	-0.05%	1.324	14.97	1.032	16.90
6/19/2019	6/19/2018	6/18/2019	243	0.6799	0.6772	0.0135	1.819	-0.06%	1.334	15.11	1.029	16.78
6/20/2019	6/20/2018	6/19/2019	243	0.6803	0.6777	0.0135	1.807	-0.07%	1.337	15.15	1.028	16.77
6/21/2019	6/21/2018	6/20/2019	243	0.6853	0.6827	0.0133	1.833	-0.08%	1.341	15.47	1.016	16.83
6/24/2019	6/24/2018	6/23/2019	242	0.6885	0.6858	0.0132	1.840	-0.08%	1.334	15.48	1.034	16.99
6/25/2019	6/25/2018	6/24/2019	243	0.6888	0.6862	0.0132	1.839	-0.08%	1.336	15.52	1.035	17.04
6/26/2019	6/26/2018	6/25/2019	243	0.6855	0.6829	0.0132	1.827	-0.08%	1.332	15.39	1.032	16.92
6/27/2019	6/27/2018	6/26/2019	243	0.6861	0.6835	0.0132	1.832	-0.08%	1.328	15.34	1.031	17.01
6/28/2019	6/28/2018	6/27/2019	243	0.6844	0.6817	0.0132	1.843	-0.11%	1.345	15.55	1.021	16.69
7/1/2019	7/1/2018	6/30/2019	242	0.6848	0.6822	0.0132	1.818	-0.11%	1.348	15.57	1.021	16.64
7/2/2019	7/2/2018	7/1/2019	243	0.6850	0.6823	0.0132	1.818	-0.11%	1.347	15.61	1.021	16.67
7/3/2019	7/3/2018	7/2/2019	243	0.6897	0.6872	0.0132	1.796	-0.12%	1.346	15.61	1.030	17.03
7/5/2019	7/5/2018	7/4/2019	243	0.6895	0.6869	0.0131	1.811	-0.14%	1.349	15.68	1.025	16.94
7/8/2019	7/8/2018	7/7/2019	242	0.6899	0.6873	0.0131	1.807	-0.14%	1.347	15.62	1.028	16.96
7/9/2019	7/9/2018	7/8/2019	243	0.6872	0.6846	0.0132	1.790	-0.15%	1.351	15.60	1.025	16.85
7/10/2019	7/10/2018	7/9/2019	243	0.6832	0.6805	0.0132	1.819	-0.15%	1.344	15.44	1.021	16.71
7/11/2019	7/11/2018	7/10/2019	243	0.6841	0.6815	0.0132	1.827	-0.14%	1.347	15.47	1.021	16.74
7/12/2019	7/12/2018	7/11/2019	243	0.6806	0.6780	0.0133	1.805	-0.15%	1.342	15.30	1.025	16.66
7/15/2019	7/15/2018	7/14/2019	242	0.6822	0.6796	0.0133	1.825	-0.14%	1.350	15.39	1.023	16.62
7/16/2019	7/16/2018	7/15/2019	243	0.6831	0.6805	0.0133	1.825	-0.15%	1.350	15.42	1.022	16.72
7/17/2019	7/17/2018	7/16/2019	243	0.6800	0.6773	0.0134	1.819	-0.15%	1.355	15.35	1.023	16.56
7/18/2019	7/18/2018	7/17/2019	243	0.6807	0.6780	0.0134	1.819	-0.15%	1.364	15.45	1.022	16.52
7/19/2019	7/19/2018	7/18/2019	243	0.6724	0.6696	0.0136	1.764	-0.16%	1.359	15.14	1.021	16.22
7/22/2019	7/22/2018	7/21/2019	242	0.6724	0.6697	0.0137	1.832	-0.15%	1.349	14.96	1.029	16.34
7/23/2019	7/23/2018	7/22/2019	243	0.6723	0.6695	0.0137	1.844	-0.16%	1.348	14.97	1.030	16.37
7/24/2019	7/24/2018	7/23/2019	243	0.6714	0.6687	0.0137	1.846	-0.15%	1.352	14.98	1.028	16.31
7/25/2019	7/25/2018	7/24/2019	243	0.6692	0.6664	0.0138	1.833	-0.15%	1.352	14.93	1.027	16.20
7/26/2019	7/26/2018	7/25/2019	243	0.6699	0.6671	0.0138	1.842	-0.16%	1.355	14.94	1.027	16.24
7/29/2019	7/29/2018	7/28/2019	242	0.6696	0.6668	0.0138	1.838	-0.17%	1.348	14.84	1.028	16.25
7/30/2019	7/30/2018	7/29/2019	243	0.6691	0.6664	0.0138	1.833	-0.17%	1.350	14.85	1.030	16.28
7/31/2019	7/31/2018	7/30/2019	243	0.6712	0.6685	0.0138	1.846	-0.17%	1.354	14.90	1.028	16.37
8/1/2019	8/1/2018	7/31/2019	243	0.6704	0.6676	0.0138	1.837	-0.16%	1.341	14.76	1.033	16.44
8/2/2019	8/2/2018	8/1/2019	242	0.6693	0.6665	0.0139	1.804	-0.15%	1.340	14.72	1.032	16.34

Exhibit 11A

Apache Corporation

Rolling Regression Model Results

Date	Control Period Begin	Control Period End	Num Obs	Model R2	Model Adjusted R2	Standard Error	Durbin Watson	Intercept	Market ¹		Industry Residual ²	
									Coefficient	t Statistic	Coefficient	t Statistic
8/5/2019	8/5/2018	8/4/2019	242	0.6773	0.6746	0.0137	1.820	-0.15%	1.333	14.85	1.052	16.76
8/6/2019	8/6/2018	8/5/2019	243	0.6805	0.6779	0.0136	1.826	-0.15%	1.330	15.13	1.052	16.80
8/7/2019	8/7/2018	8/6/2019	243	0.6806	0.6780	0.0136	1.823	-0.16%	1.313	14.99	1.052	16.94
8/8/2019	8/8/2018	8/7/2019	243	0.6756	0.6729	0.0138	1.806	-0.18%	1.311	14.77	1.055	16.78
8/9/2019	8/9/2018	8/8/2019	243	0.6764	0.6737	0.0138	1.714	-0.18%	1.309	14.85	1.056	16.76
8/12/2019	8/12/2018	8/11/2019	242	0.6927	0.6901	0.0133	1.731	-0.18%	1.317	15.51	1.051	17.27
8/13/2019	8/13/2018	8/12/2019	243	0.6931	0.6905	0.0133	1.730	-0.18%	1.318	15.59	1.050	17.28
8/14/2019	8/14/2018	8/13/2019	243	0.6936	0.6910	0.0133	1.731	-0.18%	1.317	15.64	1.050	17.28
8/15/2019	8/15/2018	8/14/2019	243	0.6990	0.6965	0.0135	1.713	-0.19%	1.368	16.26	1.055	17.12
8/16/2019	8/16/2018	8/15/2019	243	0.6968	0.6943	0.0135	1.737	-0.18%	1.357	16.16	1.069	17.05
8/19/2019	8/19/2018	8/18/2019	242	0.6962	0.6936	0.0136	1.728	-0.17%	1.375	16.24	1.069	16.85
8/20/2019	8/20/2018	8/19/2019	243	0.7006	0.6981	0.0136	1.726	-0.15%	1.392	16.48	1.075	17.03
8/21/2019	8/21/2018	8/20/2019	243	0.7002	0.6977	0.0136	1.720	-0.15%	1.390	16.47	1.074	17.01
8/22/2019	8/22/2018	8/21/2019	243	0.6999	0.6974	0.0136	1.723	-0.16%	1.386	16.44	1.074	17.01
8/23/2019	8/23/2018	8/22/2019	243	0.6997	0.6972	0.0136	1.724	-0.17%	1.386	16.45	1.075	16.99
8/26/2019	8/26/2018	8/25/2019	242	0.7008	0.6983	0.0137	1.720	-0.17%	1.382	16.55	1.072	16.90
8/27/2019	8/27/2018	8/26/2019	243	0.7005	0.6980	0.0136	1.716	-0.17%	1.383	16.61	1.070	16.90
8/28/2019	8/28/2018	8/27/2019	243	0.7000	0.6975	0.0137	1.709	-0.17%	1.383	16.58	1.070	16.88
8/29/2019	8/29/2018	8/28/2019	243	0.7027	0.7002	0.0136	1.701	-0.15%	1.389	16.71	1.070	16.97
8/30/2019	8/30/2018	8/29/2019	243	0.7031	0.7006	0.0136	1.706	-0.16%	1.387	16.75	1.069	16.97
9/3/2019	9/3/2018	9/2/2019	242	0.7029	0.7004	0.0136	1.700	-0.17%	1.390	16.74	1.067	16.89
9/4/2019	9/4/2018	9/3/2019	243	0.7029	0.7004	0.0136	1.708	-0.17%	1.389	16.77	1.067	16.93
9/5/2019	9/5/2018	9/4/2019	243	0.7042	0.7018	0.0136	1.699	-0.16%	1.395	16.87	1.068	16.94
9/6/2019	9/6/2018	9/5/2019	243	0.7042	0.7017	0.0136	1.693	-0.16%	1.403	16.99	1.061	16.81
9/9/2019	9/9/2018	9/8/2019	242	0.7028	0.7003	0.0137	1.716	-0.16%	1.400	16.91	1.062	16.71
9/10/2019	9/10/2018	9/9/2019	243	0.7060	0.7035	0.0137	1.723	-0.14%	1.400	16.84	1.079	17.11
9/11/2019	9/11/2018	9/10/2019	243	0.7057	0.7032	0.0137	1.746	-0.14%	1.399	16.83	1.077	17.10
9/12/2019	9/12/2018	9/11/2019	243	0.7054	0.7030	0.0137	1.747	-0.14%	1.398	16.83	1.076	17.07
9/13/2019	9/13/2018	9/12/2019	243	0.7044	0.7020	0.0137	1.732	-0.16%	1.397	16.82	1.066	17.00
9/16/2019	9/16/2018	9/15/2019	242	0.7068	0.7044	0.0137	1.726	-0.15%	1.400	16.89	1.065	17.06
9/17/2019	9/17/2018	9/16/2019	243	0.7172	0.7148	0.0146	1.627	-0.08%	1.379	15.57	1.195	19.14
9/18/2019	9/18/2018	9/17/2019	243	0.7183	0.7159	0.0149	1.830	-0.12%	1.375	15.25	1.224	19.48
9/19/2019	9/19/2018	9/18/2019	243	0.7186	0.7163	0.0149	1.851	-0.13%	1.374	15.23	1.226	19.52
9/20/2019	9/20/2018	9/19/2019	243	0.7162	0.7138	0.0150	1.846	-0.13%	1.373	15.15	1.223	19.39
9/23/2019	9/23/2018	9/22/2019	242	0.7166	0.7142	0.0150	1.859	-0.11%	1.381	15.23	1.220	19.29
9/24/2019	9/24/2018	9/23/2019	243	0.7145	0.7122	0.0150	1.853	-0.11%	1.381	15.20	1.218	19.23
9/25/2019	9/25/2018	9/24/2019	243	0.7145	0.7121	0.0150	1.863	-0.13%	1.392	15.35	1.215	19.11
9/26/2019	9/26/2018	9/25/2019	243	0.7131	0.7107	0.0150	1.860	-0.14%	1.392	15.32	1.211	19.02
9/27/2019	9/27/2018	9/26/2019	243	0.7111	0.7087	0.0151	1.849	-0.14%	1.392	15.27	1.204	18.92
9/30/2019	9/30/2018	9/29/2019	242	0.7102	0.7078	0.0151	1.838	-0.13%	1.387	15.15	1.207	18.87
10/1/2019	10/1/2018	9/30/2019	243	0.7100	0.7076	0.0151	1.839	-0.13%	1.385	15.16	1.205	18.91
10/2/2019	10/2/2018	10/1/2019	243	0.7131	0.7107	0.0151	1.833	-0.15%	1.399	15.34	1.212	19.01
10/3/2019	10/3/2018	10/2/2019	243	0.7158	0.7134	0.0151	1.826	-0.16%	1.410	15.56	1.214	19.04

Exhibit 11A**Apache Corporation****Rolling Regression Model Results**

Date	Control Period Begin	Control Period End	Num Obs	Model R2	Model Adjusted R2	Standard Error	Durbin Watson	Intercept	Market ¹		Industry Residual ²	
									Coefficient	t Statistic	Coefficient	t Statistic
10/4/2019	10/4/2018	10/3/2019	243	0.7144	0.7120	0.0151	1.817	-0.16%	1.409	15.53	1.212	18.95
10/7/2019	10/7/2018	10/6/2019	242	0.7071	0.7047	0.0155	1.747	-0.19%	1.375	14.87	1.231	18.87
10/8/2019	10/8/2018	10/7/2019	243	0.7044	0.7020	0.0155	1.729	-0.21%	1.380	14.84	1.229	18.75
10/9/2019	10/9/2018	10/8/2019	243	0.7027	0.7002	0.0157	1.698	-0.22%	1.397	14.94	1.228	18.55
10/10/2019	10/10/2018	10/9/2019	243	0.7020	0.6995	0.0157	1.718	-0.23%	1.399	15.00	1.226	18.45
10/11/2019	10/11/2018	10/10/2019	243	0.6947	0.6921	0.0158	1.713	-0.23%	1.383	14.49	1.222	18.33
10/14/2019	10/14/2018	10/13/2019	242	0.6903	0.6877	0.0159	1.730	-0.21%	1.395	14.31	1.222	18.11
10/15/2019	10/15/2018	10/14/2019	243	0.6860	0.6833	0.0160	1.701	-0.20%	1.393	14.19	1.220	17.97
10/16/2019	10/16/2018	10/15/2019	243	0.6866	0.6840	0.0160	1.712	-0.20%	1.392	14.21	1.221	18.00
10/17/2019	10/17/2018	10/16/2019	243	0.6873	0.6847	0.0160	1.715	-0.19%	1.417	14.35	1.219	17.93
10/18/2019	10/18/2018	10/17/2019	243	0.6830	0.6804	0.0161	1.709	-0.18%	1.418	14.28	1.212	17.70
10/21/2019	10/21/2018	10/20/2019	242	0.6762	0.6735	0.0163	1.671	-0.17%	1.414	14.02	1.205	17.40
10/22/2019	10/22/2018	10/21/2019	243	0.6770	0.6743	0.0163	1.704	-0.16%	1.419	14.09	1.201	17.45
10/23/2019	10/23/2018	10/22/2019	243	0.6747	0.6720	0.0163	1.697	-0.15%	1.415	14.00	1.191	17.37
10/24/2019	10/24/2018	10/23/2019	243	0.6726	0.6699	0.0164	1.710	-0.13%	1.410	13.93	1.196	17.29
10/25/2019	10/25/2018	10/24/2019	243	0.6695	0.6668	0.0164	1.715	-0.14%	1.409	13.65	1.199	17.32
10/28/2019	10/28/2018	10/27/2019	241	0.6701	0.6673	0.0164	1.714	-0.13%	1.428	13.63	1.200	17.25
10/29/2019	10/29/2018	10/28/2019	242	0.6704	0.6676	0.0164	1.718	-0.14%	1.424	13.62	1.199	17.34
10/30/2019	10/30/2018	10/29/2019	242	0.6691	0.6664	0.0164	1.720	-0.12%	1.416	13.54	1.200	17.32
10/31/2019	10/31/2018	10/30/2019	242	0.6680	0.6653	0.0164	1.722	-0.14%	1.403	13.34	1.193	17.40
11/1/2019	11/1/2018	10/31/2019	241	0.6683	0.6655	0.0164	1.722	-0.14%	1.405	13.31	1.194	17.39
11/4/2019	11/4/2018	11/3/2019	241	0.6676	0.6648	0.0168	1.669	-0.11%	1.437	13.28	1.223	17.37
11/5/2019	11/5/2018	11/4/2019	242	0.6686	0.6659	0.0168	1.740	-0.10%	1.440	13.33	1.218	17.45
11/6/2019	11/6/2018	11/5/2019	242	0.6627	0.6598	0.0169	1.724	-0.12%	1.434	13.20	1.209	17.18
11/7/2019	11/7/2018	11/6/2019	242	0.6610	0.6581	0.0169	1.753	-0.12%	1.437	13.18	1.198	17.09
11/8/2019	11/8/2018	11/7/2019	242	0.6621	0.6593	0.0169	1.773	-0.11%	1.454	13.23	1.193	17.13
11/11/2019	11/11/2018	11/10/2019	241	0.6597	0.6569	0.0169	1.779	-0.10%	1.468	13.35	1.182	16.83
11/12/2019	11/12/2018	11/11/2019	242	0.6594	0.6566	0.0169	1.785	-0.11%	1.470	13.38	1.183	16.84
11/13/2019	11/13/2018	11/12/2019	242	0.6589	0.6560	0.0169	1.794	-0.11%	1.472	13.29	1.184	16.88
11/14/2019	11/14/2018	11/13/2019	242	0.6588	0.6559	0.0169	1.788	-0.11%	1.470	13.27	1.187	16.89
11/15/2019	11/15/2018	11/14/2019	242	0.6602	0.6574	0.0168	1.793	-0.13%	1.483	13.42	1.181	16.86
11/18/2019	11/18/2018	11/17/2019	241	0.6598	0.6569	0.0169	1.788	-0.13%	1.481	13.36	1.183	16.82
11/19/2019	11/19/2018	11/18/2019	242	0.6619	0.6590	0.0168	1.788	-0.15%	1.481	13.39	1.187	16.99
11/20/2019	11/20/2018	11/19/2019	242	0.6641	0.6613	0.0168	1.787	-0.16%	1.484	13.37	1.199	17.14
11/21/2019	11/21/2018	11/20/2019	242	0.6606	0.6577	0.0168	1.787	-0.14%	1.460	13.05	1.197	17.17
11/22/2019	11/22/2018	11/21/2019	242	0.6587	0.6558	0.0168	1.789	-0.14%	1.454	13.00	1.193	17.09
11/25/2019	11/25/2018	11/24/2019	242	0.6574	0.6545	0.0168	1.789	-0.13%	1.447	12.94	1.201	17.07
11/26/2019	11/26/2018	11/25/2019	243	0.6571	0.6542	0.0167	1.794	-0.13%	1.446	12.96	1.200	17.09
11/27/2019	11/27/2018	11/26/2019	243	0.6580	0.6552	0.0167	1.794	-0.14%	1.449	12.92	1.201	17.17
11/29/2019	11/29/2018	11/28/2019	242	0.6587	0.6558	0.0168	1.796	-0.12%	1.479	13.02	1.199	17.07
12/2/2019	12/2/2018	12/1/2019	241	0.6588	0.6559	0.0169	1.791	-0.13%	1.496	13.08	1.205	16.98
12/3/2019	12/3/2018	12/2/2019	242	0.6089	0.6056	0.0187	1.590	-0.18%	1.542	12.19	1.173	14.94
12/4/2019	12/4/2018	12/3/2019	242	0.6088	0.6055	0.0188	1.682	-0.21%	1.546	12.16	1.187	14.97

Exhibit 11A

Apache Corporation

Rolling Regression Model Results

Date	Control Period Begin	Control Period End	Num Obs	Model R2	Model Adjusted R2	Standard Error	Durbin Watson	Intercept	Market ¹		Industry Residual ²	
									Coefficient	t Statistic	Coefficient	t Statistic
12/5/2019	12/5/2018	12/4/2019	242	0.6035	0.6002	0.0188	1.669	-0.21%	1.568	11.98	1.171	14.84
12/6/2019	12/6/2018	12/5/2019	243	0.6032	0.5999	0.0188	1.682	-0.22%	1.568	12.00	1.169	14.86
12/9/2019	12/9/2018	12/8/2019	242	0.6093	0.6060	0.0189	1.674	-0.19%	1.606	12.09	1.195	15.05
12/10/2019	12/10/2018	12/9/2019	243	0.6064	0.6031	0.0190	1.653	-0.17%	1.598	11.99	1.198	15.03
12/11/2019	12/11/2018	12/10/2019	243	0.6050	0.6017	0.0189	1.671	-0.14%	1.599	12.05	1.188	14.91
12/12/2019	12/12/2018	12/11/2019	243	0.6065	0.6032	0.0188	1.657	-0.13%	1.599	12.08	1.190	14.97
12/13/2019	12/13/2018	12/12/2019	243	0.6090	0.6057	0.0188	1.660	-0.13%	1.604	12.15	1.192	15.04
12/16/2019	12/16/2018	12/15/2019	242	0.6068	0.6035	0.0189	1.649	-0.14%	1.603	11.97	1.195	15.02
12/17/2019	12/17/2018	12/16/2019	243	0.6085	0.6052	0.0189	1.658	-0.13%	1.610	12.05	1.197	15.09
12/18/2019	12/18/2018	12/17/2019	243	0.6140	0.6108	0.0187	1.669	-0.14%	1.646	12.25	1.199	15.22
12/19/2019	12/19/2018	12/18/2019	243	0.6124	0.6092	0.0187	1.669	-0.12%	1.644	12.23	1.200	15.15
12/20/2019	12/20/2018	12/19/2019	243	0.6119	0.6087	0.0187	1.666	-0.13%	1.650	12.20	1.201	15.15
12/23/2019	12/23/2018	12/22/2019	242	0.6053	0.6020	0.0188	1.660	-0.12%	1.639	11.87	1.195	15.02
12/24/2019	12/24/2018	12/23/2019	243	0.5588	0.5551	0.0211	1.570	-0.05%	1.635	10.51	1.241	13.91
12/26/2019	12/26/2018	12/25/2019	243	0.5555	0.5518	0.0211	1.811	-0.06%	1.639	10.30	1.245	13.92
12/27/2019	12/27/2018	12/26/2019	243	0.5551	0.5514	0.0209	1.843	-0.06%	1.688	9.97	1.258	14.14
12/30/2019	12/30/2018	12/29/2019	242	0.5559	0.5522	0.0210	1.844	-0.05%	1.699	10.01	1.257	14.10
12/31/2019	12/31/2018	12/30/2019	243	0.5560	0.5523	0.0209	1.843	-0.05%	1.705	10.07	1.256	14.11
1/2/2020	1/2/2019	1/1/2020	243	0.5560	0.5523	0.0209	1.843	-0.05%	1.714	10.11	1.253	14.08
1/3/2020	1/3/2019	1/2/2020	243	0.5537	0.5500	0.0209	1.837	-0.07%	1.703	10.05	1.256	14.03
1/6/2020	1/6/2019	1/5/2020	242	0.5524	0.5486	0.0210	1.840	-0.08%	1.811	10.08	1.249	13.91
1/7/2020	1/7/2019	1/6/2020	243	0.5492	0.5454	0.0210	1.835	-0.09%	1.809	10.06	1.241	13.83
1/8/2020	1/8/2019	1/7/2020	243	0.4220	0.4172	0.0271	1.587	0.03%	1.729	7.44	1.269	10.95
1/9/2020	1/9/2019	1/8/2020	243	0.4168	0.4119	0.0272	1.859	0.03%	1.729	7.39	1.246	10.81
1/10/2020	1/10/2019	1/9/2020	243	0.4120	0.4071	0.0272	1.872	0.01%	1.712	7.32	1.239	10.70
1/13/2020	1/13/2019	1/12/2020	242	0.4141	0.4091	0.0272	1.875	0.01%	1.714	7.33	1.245	10.73
1/14/2020	1/14/2019	1/13/2020	243	0.4143	0.4094	0.0272	1.876	0.00%	1.704	7.31	1.247	10.79
1/15/2020	1/15/2019	1/14/2020	243	0.4138	0.4089	0.0273	1.871	0.01%	1.705	7.28	1.252	10.79
1/16/2020	1/16/2019	1/15/2020	243	0.4139	0.4090	0.0273	1.880	0.01%	1.714	7.29	1.251	10.79
1/17/2020	1/17/2019	1/16/2020	243	0.4128	0.4079	0.0273	1.878	0.01%	1.701	7.24	1.252	10.78
1/21/2020	1/21/2019	1/20/2020	242	0.4121	0.4072	0.0274	1.875	0.00%	1.697	7.16	1.253	10.78
1/22/2020	1/22/2019	1/21/2020	243	0.4131	0.4082	0.0273	1.876	0.00%	1.702	7.20	1.252	10.82
1/23/2020	1/23/2019	1/22/2020	243	0.4161	0.4113	0.0273	1.878	-0.02%	1.711	7.19	1.262	10.93
1/24/2020	1/24/2019	1/23/2020	243	0.4162	0.4113	0.0273	1.874	-0.02%	1.712	7.19	1.262	10.92
1/27/2020	1/27/2019	1/26/2020	242	0.4168	0.4119	0.0273	1.863	-0.02%	1.711	7.20	1.261	10.91
1/28/2020	1/28/2019	1/27/2020	243	0.4195	0.4146	0.0272	1.863	-0.03%	1.724	7.34	1.259	10.93
1/29/2020	1/29/2019	1/28/2020	243	0.4210	0.4162	0.0272	1.871	-0.05%	1.724	7.35	1.263	10.98
1/30/2020	1/30/2019	1/29/2020	243	0.4220	0.4172	0.0272	1.872	-0.07%	1.732	7.39	1.259	10.98
1/31/2020	1/31/2019	1/30/2020	243	0.4222	0.4174	0.0272	1.873	-0.06%	1.750	7.41	1.258	10.97
2/3/2020	2/3/2019	2/2/2020	242	0.4250	0.4202	0.0272	1.879	-0.05%	1.762	7.54	1.256	10.94
2/4/2020	2/4/2019	2/3/2020	243	0.4242	0.4194	0.0271	1.878	-0.05%	1.758	7.55	1.251	10.95
2/5/2020	2/5/2019	2/4/2020	243	0.4237	0.4189	0.0271	1.876	-0.05%	1.752	7.56	1.246	10.92
2/6/2020	2/6/2019	2/5/2020	243	0.4210	0.4162	0.0272	1.877	-0.04%	1.762	7.60	1.227	10.80

Exhibit 11A**Apache Corporation****Rolling Regression Model Results**

Date	Control Period Begin	Control Period End	Num Obs	Model R2	Model Adjusted R2	Standard Error	Durbin Watson	Intercept	Market ¹		Industry Residual ²	
									Coefficient	t Statistic	Coefficient	t Statistic
2/7/2020	2/7/2019	2/6/2020	243	0.4187	0.4139	0.0272	1.889	-0.03%	1.756	7.57	1.219	10.75
2/10/2020	2/10/2019	2/9/2020	242	0.4162	0.4113	0.0273	1.892	-0.02%	1.746	7.50	1.220	10.68
2/11/2020	2/11/2019	2/10/2020	243	0.4161	0.4113	0.0272	1.893	-0.03%	1.738	7.49	1.218	10.72
2/12/2020	2/12/2019	2/11/2020	243	0.4156	0.4107	0.0272	1.893	-0.03%	1.738	7.49	1.217	10.70
2/13/2020	2/13/2019	2/12/2020	243	0.4146	0.4097	0.0272	1.892	-0.03%	1.736	7.45	1.216	10.70
2/14/2020	2/14/2019	2/13/2020	243	0.4124	0.4075	0.0273	1.889	-0.05%	1.734	7.44	1.211	10.64
2/18/2020	2/18/2019	2/17/2020	242	0.4124	0.4075	0.0273	1.888	-0.07%	1.736	7.40	1.216	10.63
2/19/2020	2/19/2019	2/18/2020	243	0.4093	0.4044	0.0274	1.887	-0.05%	1.726	7.35	1.214	10.59
2/20/2020	2/20/2019	2/19/2020	243	0.4070	0.4021	0.0274	1.901	-0.05%	1.728	7.35	1.200	10.52
2/21/2020	2/21/2019	2/20/2020	243	0.4069	0.4019	0.0274	1.910	-0.05%	1.723	7.33	1.201	10.53
2/24/2020	2/24/2019	2/23/2020	242	0.4071	0.4021	0.0275	1.909	-0.04%	1.714	7.30	1.207	10.52
2/25/2020	2/25/2019	2/24/2020	243	0.4135	0.4087	0.0274	1.907	-0.04%	1.715	7.63	1.206	10.54
2/26/2020	2/26/2019	2/25/2020	243	0.4172	0.4124	0.0274	1.904	-0.04%	1.704	7.82	1.204	10.52
2/27/2020	2/27/2019	2/26/2020	243	0.4201	0.4153	0.0274	1.902	-0.05%	1.713	7.86	1.196	10.59
2/28/2020	2/28/2019	2/27/2020	242	0.4198	0.4150	0.0275	1.902	-0.05%	1.714	7.85	1.195	10.55
3/2/2020	3/2/2019	3/1/2020	242	0.4120	0.4071	0.0276	1.899	-0.06%	1.704	7.76	1.160	10.35
3/3/2020	3/3/2019	3/2/2020	243	0.4130	0.4081	0.0276	1.912	-0.07%	1.568	7.61	1.158	10.53
3/4/2020	3/4/2019	3/3/2020	244	0.4138	0.4090	0.0275	1.911	-0.06%	1.531	7.62	1.159	10.59
3/5/2020	3/5/2019	3/4/2020	244	0.4128	0.4079	0.0276	1.907	-0.07%	1.412	7.33	1.173	10.76
3/6/2020	3/6/2019	3/5/2020	244	0.4146	0.4097	0.0276	1.912	-0.06%	1.386	7.40	1.175	10.77
3/9/2020	3/9/2019	3/8/2020	242	0.4460	0.4413	0.0278	1.915	-0.11%	1.487	7.92	1.223	11.39
3/10/2020	3/10/2019	3/9/2020	243	0.6780	0.6753	0.0289	1.891	-0.32%	2.657	15.31	1.504	16.46
3/11/2020	3/11/2019	3/10/2020	244	0.6868	0.6842	0.0288	1.931	-0.32%	2.660	16.01	1.504	16.49
3/12/2020	3/12/2019	3/11/2020	244	0.6949	0.6924	0.0296	1.882	-0.36%	2.821	17.12	1.499	16.00
3/13/2020	3/13/2019	3/12/2020	244	0.6698	0.6670	0.0308	2.011	-0.29%	2.332	15.36	1.544	15.90
3/16/2020	3/14/2019	3/13/2020	244	0.6518	0.6490	0.0317	2.112	-0.36%	2.006	14.14	1.577	15.85
Thereafter	3/14/2019	3/13/2020	244	0.6518	0.6490	0.0317	2.112	-0.36%	2.006	14.14	1.577	15.85

[1] Market Index: S&P 500

[2] Industry Index: S&P 500 Oil & Gas Exploration and Production Index (S5OILP Index) excluding Apache. See Exhibit 11C.

Exhibit 11B**Apache Corporation****Actual vs. Predicted Returns**

Date	Closing Price	Actual Return	Market Return	Industry Residual	Predicted Return	Company-Specific Return	Standard Error	t-Stat	Confidence Level
9/7/2016	\$55.13	6.70%	0.01%	0.58%	0.66%	6.04%	1.68%	3.59	99.96%
9/8/2016	\$59.05	7.11%	-0.22%	3.33%	3.20%	3.91%	1.72%	2.27	97.58%
9/9/2016	\$59.40	0.59%	-2.45%	1.10%	-3.54%	4.14%	1.74%	2.38	98.18%
9/12/2016	\$59.90	0.84%	1.47%	-1.81%	0.95%	-0.11%	1.75%	-0.06	5.03%
9/13/2016	\$57.51	-3.99%	-1.45%	-1.33%	-4.07%	0.08%	1.75%	0.05	3.82%
9/14/2016	\$56.75	-1.32%	-0.05%	-1.99%	-2.16%	0.84%	1.75%	0.48	36.90%
9/15/2016	\$58.70	3.44%	1.03%	-0.38%	1.65%	1.79%	1.75%	1.02	69.24%
9/16/2016	\$58.56	-0.24%	-0.38%	0.37%	-0.20%	-0.04%	1.75%	-0.02	1.87%
9/19/2016	\$57.85	-1.21%	0.00%	-0.72%	-0.66%	-0.56%	1.74%	-0.32	25.01%
9/20/2016	\$57.49	-0.62%	0.03%	-0.23%	-0.07%	-0.55%	1.74%	-0.32	24.94%
9/21/2016	\$60.89	5.91%	1.09%	1.65%	3.97%	1.95%	1.74%	1.12	73.66%
9/22/2016	\$61.00	0.18%	0.65%	-0.80%	0.50%	-0.32%	1.74%	-0.18	14.52%
9/23/2016	\$60.02	-1.61%	-0.57%	-1.68%	-2.79%	1.18%	1.74%	0.68	50.35%
9/26/2016	\$59.94	-0.13%	-0.85%	1.36%	-0.01%	-0.12%	1.74%	-0.07	5.71%
9/27/2016	\$59.59	-0.58%	0.65%	-3.05%	-1.95%	1.36%	1.74%	0.78	56.63%
9/28/2016	\$63.70	6.90%	0.55%	5.17%	6.77%	0.13%	1.74%	0.08	6.00%
9/29/2016	\$63.74	0.06%	-0.93%	3.48%	2.17%	-2.10%	1.74%	-1.21	77.36%
9/30/2016	\$63.87	0.20%	0.80%	0.06%	1.72%	-1.52%	1.74%	-0.87	61.65%
10/3/2016	\$63.95	0.13%	-0.31%	0.70%	0.30%	-0.17%	1.74%	-0.10	7.85%
10/4/2016	\$63.79	-0.25%	-0.49%	-0.42%	-1.22%	0.97%	1.73%	0.56	42.38%
10/5/2016	\$64.65	1.35%	0.47%	1.33%	2.41%	-1.07%	1.73%	-0.62	46.10%
10/6/2016	\$64.09	-0.87%	0.05%	-0.17%	0.04%	-0.90%	1.73%	-0.52	39.74%
10/7/2016	\$63.33	-1.19%	-0.32%	-0.31%	-0.82%	-0.37%	1.73%	-0.21	16.69%
10/10/2016	\$64.16	1.31%	0.46%	0.63%	1.63%	-0.32%	1.73%	-0.19	14.71%
10/11/2016	\$62.87	-2.01%	-1.24%	0.49%	-1.67%	-0.34%	1.73%	-0.20	15.68%
10/12/2016	\$62.71	-0.25%	0.12%	-0.25%	0.07%	-0.32%	1.73%	-0.19	14.83%
10/13/2016	\$62.07	-1.02%	-0.31%	-0.30%	-0.77%	-0.26%	1.72%	-0.15	11.75%
10/14/2016	\$61.77	-0.48%	0.02%	-1.27%	-1.20%	0.71%	1.72%	0.41	32.10%
10/17/2016	\$61.85	0.13%	-0.30%	-0.73%	-1.23%	1.36%	1.73%	0.78	56.66%
10/18/2016	\$62.83	1.58%	0.62%	-1.14%	0.05%	1.53%	1.73%	0.89	62.31%
10/19/2016	\$64.32	2.77%	0.23%	1.74%	2.40%	0.37%	1.73%	0.22	17.02%
10/20/2016	\$63.48	-1.31%	-0.13%	0.25%	0.16%	-1.46%	1.73%	-0.85	60.20%
10/21/2016	\$62.19	-2.03%	-0.01%	-0.97%	-0.92%	-1.11%	1.73%	-0.64	47.85%
10/24/2016	\$61.58	-0.98%	0.48%	-1.41%	-0.48%	-0.51%	1.73%	-0.29	22.91%
10/25/2016	\$60.57	-1.64%	-0.38%	-1.15%	-1.81%	0.17%	1.73%	0.10	7.90%
10/26/2016	\$61.68	1.83%	-0.17%	0.16%	-0.04%	1.87%	1.73%	1.08	71.95%
10/27/2016	\$61.70	0.03%	-0.30%	1.65%	1.34%	-1.31%	1.73%	-0.76	54.99%
10/28/2016	\$60.72	-1.59%	-0.31%	-0.41%	-0.86%	-0.72%	1.73%	-0.42	32.39%
10/31/2016	\$59.48	-2.04%	-0.01%	-2.19%	-2.24%	0.20%	1.74%	0.11	8.94%
11/1/2016	\$59.53	0.08%	-0.68%	1.38%	0.31%	-0.22%	1.73%	-0.13	10.14%
11/2/2016	\$59.46	-0.12%	-0.64%	0.44%	-0.62%	0.50%	1.73%	0.29	22.65%
11/3/2016	\$55.52	-6.63%	-0.41%	1.64%	1.11%	-7.73%	1.73%	-4.47	100.00%
11/4/2016	\$56.14	1.12%	-0.16%	-1.09%	-1.36%	2.48%	1.73%	1.43	84.57%
11/7/2016	\$57.45	2.33%	2.22%	-1.17%	3.03%	-0.70%	1.74%	-0.40	31.28%
11/8/2016	\$56.93	-0.91%	0.43%	-0.80%	0.06%	-0.97%	1.74%	-0.56	42.25%
11/9/2016	\$58.02	1.91%	1.11%	0.56%	2.76%	-0.84%	1.73%	-0.48	37.18%
11/10/2016	\$58.32	0.52%	0.20%	-0.72%	-0.31%	0.82%	1.50%	0.55	41.76%

Exhibit 11B**Apache Corporation****Actual vs. Predicted Returns**

Date	Closing Price	Actual Return	Market Return	Industry Residual	Predicted Return	Company-Specific Return	Standard Error	t-Stat	Confidence Level
11/11/2016	\$57.72	-1.03%	-0.14%	-1.95%	-2.24%	1.21%	1.50%	0.81	58.09%
11/14/2016	\$58.93	2.10%	0.00%	1.19%	1.30%	0.80%	1.48%	0.54	40.95%
11/15/2016	\$63.39	7.57%	0.77%	2.18%	3.81%	3.76%	1.48%	2.54	98.83%
11/16/2016	\$62.45	-1.48%	-0.13%	-0.76%	-0.94%	-0.54%	1.50%	-0.36	28.23%
11/17/2016	\$61.40	-1.68%	0.47%	-2.50%	-1.59%	-0.10%	1.50%	-0.06	5.10%
11/18/2016	\$62.08	1.11%	-0.22%	1.45%	1.17%	-0.06%	1.49%	-0.04	3.36%
11/21/2016	\$63.27	1.92%	0.75%	2.53%	4.22%	-2.31%	1.50%	-1.54	87.53%
11/22/2016	\$62.47	-1.26%	0.22%	-0.82%	-0.30%	-0.96%	1.50%	-0.64	47.78%
11/23/2016	\$63.65	1.89%	0.08%	1.20%	1.52%	0.37%	1.50%	0.24	19.26%
11/25/2016	\$62.84	-1.27%	0.39%	-2.20%	-1.41%	0.14%	1.50%	0.09	7.33%
11/28/2016	\$61.35	-2.37%	-0.51%	-1.61%	-2.57%	0.20%	1.50%	0.13	10.46%
11/29/2016	\$60.74	-0.99%	0.16%	-1.71%	-1.37%	0.38%	1.50%	0.25	19.88%
11/30/2016	\$65.95	8.58%	-0.24%	10.91%	10.93%	-2.36%	1.50%	-1.58	88.36%
12/1/2016	\$65.14	-1.23%	-0.35%	1.01%	0.48%	-1.70%	1.50%	-1.14	74.30%
12/2/2016	\$65.11	-0.05%	0.04%	-0.20%	0.01%	-0.06%	1.50%	-0.04	3.15%
12/5/2016	\$66.41	2.00%	0.59%	0.06%	1.40%	0.60%	1.50%	0.40	30.80%
12/6/2016	\$66.35	-0.09%	0.34%	-0.32%	0.52%	-0.61%	1.50%	-0.41	31.67%
12/7/2016	\$66.39	0.06%	1.34%	-2.14%	0.64%	-0.58%	1.50%	-0.38	29.91%
12/8/2016	\$66.50	0.17%	0.23%	0.25%	0.86%	-0.69%	1.49%	-0.46	35.70%
12/9/2016	\$66.56	0.09%	0.59%	-0.39%	0.92%	-0.83%	1.49%	-0.56	42.31%
12/12/2016	\$66.79	0.35%	-0.11%	-0.33%	-0.41%	0.76%	1.48%	0.51	39.05%
12/13/2016	\$67.35	0.84%	0.67%	0.74%	2.19%	-1.36%	1.48%	-0.92	64.03%
12/14/2016	\$65.74	-2.39%	-0.81%	-1.53%	-2.98%	0.59%	1.48%	0.40	31.18%
12/15/2016	\$66.74	1.52%	0.39%	-0.80%	0.07%	1.45%	1.48%	0.98	67.25%
12/16/2016	\$66.39	-0.52%	-0.17%	0.12%	-0.08%	-0.44%	1.47%	-0.30	23.72%
12/19/2016	\$66.70	0.47%	0.20%	-0.34%	0.18%	0.29%	1.47%	0.19	15.37%
12/20/2016	\$66.75	0.07%	0.38%	-1.39%	-0.54%	0.62%	1.47%	0.42	32.44%
12/21/2016	\$66.64	-0.16%	-0.24%	0.35%	0.01%	-0.18%	1.47%	-0.12	9.50%
12/22/2016	\$66.74	0.15%	-0.17%	0.40%	0.21%	-0.06%	1.47%	-0.04	3.27%
12/23/2016	\$66.40	-0.51%	0.14%	-0.57%	-0.17%	-0.34%	1.46%	-0.23	18.20%
12/27/2016	\$66.34	-0.09%	0.23%	0.09%	0.66%	-0.76%	1.47%	-0.52	39.32%
12/28/2016	\$64.59	-2.64%	-0.82%	0.00%	-1.48%	-1.16%	1.46%	-0.79	56.98%
12/29/2016	\$63.87	-1.11%	-0.02%	-0.66%	-0.61%	-0.51%	1.46%	-0.35	27.12%
12/30/2016	\$63.47	-0.63%	-0.46%	0.17%	-0.60%	-0.03%	1.46%	-0.02	1.60%
1/3/2017	\$63.78	0.49%	0.85%	-0.27%	1.53%	-1.04%	1.46%	-0.71	52.20%
1/4/2017	\$63.59	-0.30%	0.59%	-0.74%	0.51%	-0.81%	1.46%	-0.56	42.25%
1/5/2017	\$63.25	-0.53%	-0.08%	0.79%	0.78%	-1.31%	1.46%	-0.90	63.01%
1/6/2017	\$63.12	-0.21%	0.38%	-0.80%	0.03%	-0.24%	1.45%	-0.16	13.08%
1/9/2017	\$62.36	-1.20%	-0.35%	-1.69%	-2.27%	1.06%	1.42%	0.75	54.49%
1/10/2017	\$62.87	0.82%	0.00%	0.05%	0.19%	0.63%	1.42%	0.44	34.14%
1/11/2017	\$63.77	1.43%	0.29%	1.02%	1.74%	-0.31%	1.42%	-0.22	17.29%
1/12/2017	\$63.02	-1.18%	-0.21%	-0.53%	-0.79%	-0.39%	1.42%	-0.27	21.55%
1/13/2017	\$62.78	-0.38%	0.18%	-0.39%	0.11%	-0.49%	1.40%	-0.35	27.46%
1/17/2017	\$63.10	0.51%	-0.30%	0.56%	0.11%	0.40%	1.40%	0.29	22.51%
1/18/2017	\$62.91	0.10%	0.19%	-0.50%	0.00%	0.10%	1.40%	0.07	5.46%
1/19/2017	\$62.22	-1.10%	-0.36%	0.39%	-0.19%	-0.91%	1.39%	-0.65	48.37%
1/20/2017	\$61.81	-0.66%	0.34%	-0.14%	0.68%	-1.33%	1.39%	-0.96	66.27%

Exhibit 11B**Apache Corporation****Actual vs. Predicted Returns**

Date	Closing Price	Actual Return	Market Return	Industry Residual	Predicted Return	Company-Specific Return	Standard Error	t-Stat	Confidence Level
1/23/2017	\$60.77	-1.68%	-0.27%	-0.72%	-1.19%	-0.49%	1.38%	-0.36	27.86%
1/24/2017	\$60.96	0.31%	0.66%	-0.16%	1.22%	-0.91%	1.37%	-0.66	49.06%
1/25/2017	\$61.43	0.77%	0.80%	-1.27%	0.35%	0.42%	1.37%	0.31	24.18%
1/26/2017	\$62.55	1.82%	-0.07%	0.58%	0.56%	1.26%	1.35%	0.93	64.87%
1/27/2017	\$62.08	-0.75%	-0.08%	-1.33%	-1.50%	0.75%	1.32%	0.57	43.01%
1/30/2017	\$59.95	-3.43%	-0.60%	-1.99%	-3.27%	-0.16%	1.33%	-0.12	9.59%
1/31/2017	\$59.82	-0.22%	-0.09%	0.96%	0.91%	-1.13%	1.33%	-0.85	60.30%
2/1/2017	\$57.78	-3.41%	0.05%	-0.81%	-0.72%	-2.69%	1.33%	-2.03	95.67%
2/2/2017	\$59.09	2.27%	0.06%	0.54%	0.76%	1.51%	1.33%	1.13	74.09%
2/3/2017	\$59.64	0.93%	0.74%	0.57%	2.13%	-1.20%	1.33%	-0.90	63.19%
2/6/2017	\$57.87	-2.97%	-0.21%	-0.90%	-1.32%	-1.65%	1.33%	-1.24	78.26%
2/7/2017	\$57.03	-1.45%	0.03%	-2.69%	-2.82%	1.37%	1.33%	1.02	69.31%
2/8/2017	\$56.93	-0.18%	0.10%	0.21%	0.47%	-0.64%	1.33%	-0.48	36.92%
2/9/2017	\$56.92	-0.02%	0.59%	0.95%	2.23%	-2.25%	1.31%	-1.71	91.20%
2/10/2017	\$57.38	0.81%	0.36%	0.54%	1.35%	-0.54%	1.32%	-0.41	31.73%
2/13/2017	\$57.18	-0.35%	0.55%	-1.73%	-0.79%	0.44%	1.31%	0.34	26.26%
2/14/2017	\$55.50	-2.94%	0.43%	0.16%	1.03%	-3.97%	1.31%	-3.03	99.73%
2/15/2017	\$55.59	0.16%	0.51%	-2.00%	-1.18%	1.35%	1.33%	1.01	68.77%
2/16/2017	\$55.25	-0.61%	-0.08%	-1.42%	-1.64%	1.03%	1.33%	0.78	56.15%
2/17/2017	\$55.44	0.34%	0.17%	-0.84%	-0.56%	0.91%	1.32%	0.69	50.70%
2/21/2017	\$55.89	0.81%	0.60%	-0.30%	0.81%	0.00%	1.31%	0.00	0.08%
2/22/2017	\$54.91	-1.75%	-0.10%	-2.56%	-2.90%	1.14%	1.31%	0.87	61.73%
2/23/2017	\$52.98	-3.51%	0.05%	-0.02%	0.11%	-3.63%	1.31%	-2.78	99.41%
2/24/2017	\$53.41	0.81%	0.17%	-1.60%	-1.38%	2.20%	1.31%	1.68	90.59%
2/27/2017	\$52.93	-0.90%	0.12%	0.43%	0.68%	-1.58%	1.31%	-1.21	77.30%
2/28/2017	\$52.59	-0.64%	-0.25%	-0.04%	-0.47%	-0.18%	1.31%	-0.14	10.74%
3/1/2017	\$52.95	0.68%	1.39%	0.30%	2.72%	-2.04%	1.30%	-1.56	88.03%
3/2/2017	\$51.92	-1.95%	-0.58%	-0.73%	-1.77%	-0.18%	1.31%	-0.13	10.66%
3/3/2017	\$52.09	0.33%	0.05%	-0.38%	-0.31%	0.63%	1.30%	0.49	37.41%
3/6/2017	\$52.19	0.19%	-0.33%	1.55%	0.96%	-0.77%	1.26%	-0.61	45.84%
3/7/2017	\$51.28	-1.74%	-0.28%	-0.51%	-1.05%	-0.69%	1.26%	-0.55	41.95%
3/8/2017	\$49.41	-3.65%	-0.20%	-4.00%	-4.41%	0.76%	1.24%	0.62	46.25%
3/9/2017	\$50.63	2.47%	0.08%	1.28%	1.33%	1.14%	1.23%	0.93	64.65%
3/10/2017	\$50.23	-0.79%	0.33%	-1.57%	-1.04%	0.25%	1.22%	0.21	16.29%
3/13/2017	\$50.16	-0.14%	0.07%	0.60%	0.63%	-0.77%	1.22%	-0.63	47.20%
3/14/2017	\$50.33	0.34%	-0.33%	-0.92%	-1.48%	1.82%	1.22%	1.49	86.26%
3/15/2017	\$51.07	1.47%	0.84%	1.27%	2.51%	-1.04%	1.23%	-0.85	60.36%
3/16/2017	\$51.08	0.02%	-0.16%	-0.54%	-0.82%	0.84%	1.23%	0.69	50.76%
3/17/2017	\$51.22	0.27%	-0.13%	0.21%	-0.06%	0.33%	1.23%	0.27	21.16%
3/20/2017	\$50.93	-0.57%	-0.20%	0.35%	-0.02%	-0.54%	1.22%	-0.44	34.30%
3/21/2017	\$50.30	-1.24%	-1.23%	0.45%	-1.55%	0.31%	1.22%	0.25	19.90%
3/22/2017	\$50.54	0.48%	0.19%	-0.94%	-0.66%	1.14%	1.22%	0.93	64.81%
3/23/2017	\$50.09	-0.89%	-0.10%	-0.14%	-0.35%	-0.54%	1.22%	-0.44	34.29%
3/24/2017	\$50.24	0.30%	-0.08%	-0.13%	-0.29%	0.59%	1.22%	0.49	37.30%
3/27/2017	\$49.72	-1.04%	-0.10%	0.13%	-0.07%	-0.96%	1.22%	-0.79	56.98%
3/28/2017	\$51.22	3.02%	0.73%	1.28%	2.31%	0.71%	1.21%	0.59	44.10%
3/29/2017	\$53.18	3.83%	0.13%	2.12%	2.21%	1.62%	1.22%	1.33	81.53%

Exhibit 11B**Apache Corporation****Actual vs. Predicted Returns**

Date	Closing Price	Actual Return	Market Return	Industry Residual	Predicted Return	Company-Specific Return	Standard Error	t-Stat	Confidence Level
3/30/2017	\$52.09	-2.05%	0.30%	0.42%	0.86%	-2.91%	1.22%	-2.39	98.22%
3/31/2017	\$51.39	-1.34%	-0.23%	0.71%	0.32%	-1.66%	1.23%	-1.35	82.08%
4/3/2017	\$51.04	-0.68%	-0.16%	-0.34%	-0.60%	-0.08%	1.24%	-0.07	5.46%
4/4/2017	\$51.89	1.67%	0.07%	1.34%	1.39%	0.28%	1.23%	0.23	17.91%
4/5/2017	\$51.70	-0.37%	-0.30%	-0.53%	-0.99%	0.62%	1.23%	0.50	38.44%
4/6/2017	\$52.96	2.44%	0.22%	1.03%	1.32%	1.11%	1.23%	0.90	63.31%
4/7/2017	\$52.64	-0.60%	-0.08%	-0.53%	-0.66%	0.06%	1.23%	0.05	3.89%
4/10/2017	\$53.99	2.56%	0.07%	1.17%	1.20%	1.36%	1.23%	1.11	73.30%
4/11/2017	\$53.87	-0.22%	-0.13%	0.19%	-0.05%	-0.17%	1.23%	-0.14	11.18%
4/12/2017	\$53.81	-0.11%	-0.37%	-0.24%	-0.85%	0.74%	1.22%	0.60	45.29%
4/13/2017	\$52.37	-2.68%	-0.68%	-0.96%	-2.00%	-0.68%	1.22%	-0.55	41.98%
4/17/2017	\$52.50	0.25%	0.86%	-0.89%	0.47%	-0.22%	1.23%	-0.18	14.34%
4/18/2017	\$50.45	-3.90%	-0.29%	-0.69%	-1.14%	-2.76%	1.22%	-2.26	97.51%
4/19/2017	\$49.19	-2.00%	-0.16%	-1.80%	-2.03%	0.03%	1.23%	0.02	1.65%
4/20/2017	\$49.02	-0.35%	0.76%	-0.77%	0.37%	-0.72%	1.23%	-0.58	43.72%
4/21/2017	\$49.02	0.00%	-0.30%	0.63%	0.05%	-0.05%	1.23%	-0.04	3.33%
4/24/2017	\$48.74	-0.57%	1.09%	-1.47%	0.18%	-0.75%	1.23%	-0.61	45.51%
4/25/2017	\$50.25	3.10%	0.61%	0.79%	1.59%	1.50%	1.23%	1.22	77.72%
4/26/2017	\$50.01	-0.48%	-0.05%	-0.47%	-0.61%	0.13%	1.23%	0.11	8.37%
4/27/2017	\$48.32	-3.38%	0.07%	-2.31%	-2.23%	-1.15%	1.23%	-0.94	65.03%
4/28/2017	\$48.64	0.66%	-0.19%	-0.10%	-0.51%	1.17%	1.23%	0.95	65.68%
5/1/2017	\$48.79	0.31%	0.17%	-0.63%	-0.45%	0.76%	1.23%	0.62	46.46%
5/2/2017	\$48.47	-0.66%	0.12%	-0.92%	-0.81%	0.15%	1.23%	0.13	10.01%
5/3/2017	\$48.80	0.68%	-0.11%	-0.32%	-0.56%	1.24%	1.23%	1.02	68.89%
5/4/2017	\$47.90	-1.84%	0.06%	-2.47%	-2.38%	0.54%	1.23%	0.44	33.70%
5/5/2017	\$49.29	2.90%	0.41%	1.81%	2.28%	0.62%	1.23%	0.50	38.51%
5/8/2017	\$50.25	1.95%	0.01%	0.74%	0.68%	1.27%	1.23%	1.03	69.60%
5/9/2017	\$50.45	0.40%	-0.10%	-1.00%	-1.16%	1.56%	1.23%	1.27	79.39%
5/10/2017	\$51.21	1.51%	0.15%	2.22%	2.33%	-0.82%	1.23%	-0.67	49.42%
5/11/2017	\$51.07	-0.27%	-0.18%	-0.06%	-0.36%	0.08%	1.23%	0.07	5.36%
5/12/2017	\$51.45	0.74%	-0.15%	0.11%	-0.16%	0.90%	1.23%	0.74	53.75%
5/15/2017	\$50.97	-0.93%	0.49%	-0.11%	0.60%	-1.53%	1.23%	-1.24	78.54%
5/16/2017	\$50.97	0.00%	-0.05%	-0.55%	-0.64%	0.64%	1.23%	0.52	39.74%
5/17/2017	\$50.19	-1.53%	-1.79%	1.85%	-0.92%	-0.61%	1.23%	-0.50	38.07%
5/18/2017	\$49.92	-0.54%	0.37%	-1.13%	-0.58%	0.04%	1.23%	0.03	2.71%
5/19/2017	\$51.16	2.48%	0.68%	1.41%	2.30%	0.19%	1.21%	0.15	12.27%
5/22/2017	\$50.02	-2.23%	0.52%	-1.48%	-0.72%	-1.51%	1.21%	-1.25	78.85%
5/23/2017	\$50.00	-0.04%	0.19%	-0.41%	-0.19%	0.15%	1.21%	0.13	10.17%
5/24/2017	\$49.87	-0.26%	0.25%	-0.89%	-0.56%	0.30%	1.21%	0.25	19.86%
5/25/2017	\$47.71	-4.33%	0.46%	-3.43%	-2.72%	-1.61%	1.21%	-1.34	81.80%
5/26/2017	\$48.19	1.01%	0.04%	0.55%	0.51%	0.49%	1.19%	0.41	31.96%
5/30/2017	\$47.56	-1.31%	-0.11%	-1.86%	-2.09%	0.78%	1.19%	0.65	48.49%
5/31/2017	\$46.76	-1.68%	-0.03%	-0.25%	-0.38%	-1.30%	1.19%	-1.09	72.36%
6/1/2017	\$47.30	1.15%	0.77%	-0.55%	0.51%	0.65%	1.19%	0.54	41.27%
6/2/2017	\$46.99	-0.66%	0.37%	-2.40%	-1.90%	1.25%	1.18%	1.05	70.67%
6/5/2017	\$46.73	-0.55%	-0.12%	-0.19%	-0.44%	-0.11%	1.18%	-0.10	7.58%
6/6/2017	\$48.04	2.80%	-0.28%	2.11%	1.59%	1.22%	1.18%	1.03	69.58%

Exhibit 11B**Apache Corporation****Actual vs. Predicted Returns**

Date	Closing Price	Actual Return	Market Return	Industry Residual	Predicted Return	Company-Specific Return	Standard Error	t-Stat	Confidence Level
6/7/2017	\$46.78	-2.62%	0.18%	-3.37%	-3.15%	0.52%	1.18%	0.44	34.18%
6/8/2017	\$47.00	0.47%	0.03%	-0.61%	-0.65%	1.12%	1.18%	0.95	65.56%
6/9/2017	\$48.34	2.85%	-0.08%	3.56%	3.27%	-0.42%	1.18%	-0.36	27.90%
6/12/2017	\$48.42	0.17%	-0.09%	0.75%	0.55%	-0.38%	1.18%	-0.33	25.51%
6/13/2017	\$49.22	1.65%	0.48%	1.05%	1.65%	0.00%	1.18%	0.00	0.28%
6/14/2017	\$47.72	-3.05%	-0.09%	-2.28%	-2.40%	-0.64%	1.18%	-0.55	41.60%
6/15/2017	\$47.80	0.17%	-0.21%	-1.40%	-1.74%	1.91%	1.18%	1.62	89.39%
6/16/2017	\$49.54	3.64%	0.03%	1.35%	1.28%	2.36%	1.18%	2.00	95.32%
6/19/2017	\$49.82	0.57%	0.84%	-2.21%	-0.98%	1.54%	1.19%	1.29	80.32%
6/20/2017	\$47.72	-4.22%	-0.67%	0.13%	-0.91%	-3.30%	1.19%	-2.77	99.39%
6/21/2017	\$45.66	-4.32%	-0.05%	-1.76%	-1.85%	-2.47%	1.21%	-2.04	95.74%
6/22/2017	\$45.63	-0.07%	-0.04%	0.25%	0.07%	-0.14%	1.22%	-0.11	8.99%
6/23/2017	\$46.08	0.99%	0.16%	1.02%	1.12%	-0.13%	1.22%	-0.11	8.55%
6/26/2017	\$46.21	0.28%	0.03%	-0.06%	-0.12%	0.40%	1.22%	0.33	25.64%
6/27/2017	\$46.21	0.00%	-0.81%	0.94%	-0.36%	0.36%	1.22%	0.29	22.99%
6/28/2017	\$47.14	2.01%	0.90%	-0.53%	0.64%	1.37%	1.21%	1.13	74.03%
6/29/2017	\$47.45	0.66%	-0.86%	3.09%	1.77%	-1.12%	1.22%	-0.92	64.01%
6/30/2017	\$47.93	1.01%	0.16%	0.16%	0.29%	0.73%	1.22%	0.60	44.83%
7/3/2017	\$49.33	2.92%	0.24%	2.25%	2.41%	0.51%	1.22%	0.41	32.12%
7/5/2017	\$47.65	-3.41%	0.16%	-3.04%	-2.77%	-0.63%	1.22%	-0.52	39.70%
7/6/2017	\$45.77	-3.95%	-0.90%	-0.61%	-1.81%	-2.14%	1.22%	-1.75	91.89%
7/7/2017	\$45.11	-1.44%	0.64%	-1.58%	-0.75%	-0.69%	1.23%	-0.57	42.78%
7/10/2017	\$47.11	4.43%	0.09%	1.12%	1.13%	3.30%	1.23%	2.69	99.24%
7/11/2017	\$47.20	0.19%	-0.08%	1.19%	0.99%	-0.80%	1.24%	-0.64	48.00%
7/12/2017	\$47.58	0.81%	0.74%	-1.02%	-0.05%	0.86%	1.24%	0.69	50.88%
7/13/2017	\$48.24	1.39%	0.19%	0.72%	0.88%	0.51%	1.24%	0.41	31.82%
7/14/2017	\$48.56	0.66%	0.47%	0.05%	0.60%	0.06%	1.25%	0.05	4.00%
7/17/2017	\$48.68	0.25%	0.00%	0.26%	0.19%	0.06%	1.25%	0.05	3.60%
7/18/2017	\$47.73	-1.95%	0.06%	-0.89%	-0.84%	-1.11%	1.24%	-0.89	62.80%
7/19/2017	\$49.86	4.99%	0.55%	2.06%	2.66%	2.33%	1.24%	1.87	93.74%
7/20/2017	\$49.35	-1.02%	-0.01%	-1.12%	-1.14%	0.12%	1.25%	0.09	7.54%
7/21/2017	\$48.41	-1.90%	-0.04%	-0.68%	-0.75%	-1.15%	1.25%	-0.92	64.34%
7/24/2017	\$47.96	-0.93%	-0.10%	0.30%	0.12%	-1.05%	1.25%	-0.84	59.63%
7/25/2017	\$48.86	1.88%	0.29%	2.25%	2.55%	-0.68%	1.25%	-0.54	40.96%
7/26/2017	\$48.86	0.00%	0.03%	-0.39%	-0.36%	0.36%	1.25%	0.29	22.49%
7/27/2017	\$50.22	2.78%	-0.09%	2.03%	1.83%	0.95%	1.25%	0.76	55.31%
7/28/2017	\$50.01	-0.42%	-0.13%	-0.02%	-0.20%	-0.22%	1.25%	-0.18	14.00%
7/31/2017	\$49.48	-1.06%	-0.07%	-0.25%	-0.35%	-0.71%	1.25%	-0.57	42.82%
8/1/2017	\$48.66	-1.66%	0.25%	-1.28%	-0.95%	-0.71%	1.25%	-0.57	42.95%
8/2/2017	\$47.91	-1.54%	0.07%	-1.67%	-1.53%	-0.01%	1.25%	-0.01	0.45%
8/3/2017	\$44.06	-8.04%	-0.20%	-2.92%	-3.12%	-4.92%	1.25%	-3.93	99.99%
8/4/2017	\$45.22	2.63%	0.19%	1.52%	1.70%	0.93%	1.25%	0.75	54.34%
8/7/2017	\$44.39	-1.84%	0.17%	-2.09%	-1.84%	0.00%	1.23%	0.00	0.09%
8/8/2017	\$44.12	-0.61%	-0.23%	1.40%	1.05%	-1.66%	1.23%	-1.35	82.12%
8/9/2017	\$43.58	-1.22%	-0.02%	0.31%	0.24%	-1.46%	1.24%	-1.18	76.16%
8/10/2017	\$42.61	-2.23%	-1.41%	0.52%	-1.41%	-0.82%	1.24%	-0.66	49.02%
8/11/2017	\$42.39	-0.52%	0.13%	-0.53%	-0.36%	-0.16%	1.23%	-0.13	10.38%

Exhibit 11B**Apache Corporation****Actual vs. Predicted Returns**

Date	Closing Price	Actual Return	Market Return	Industry Residual	Predicted Return	Company-Specific Return	Standard Error	t-Stat	Confidence Level
8/14/2017	\$41.57	-1.93%	1.01%	-2.29%	-0.92%	-1.01%	1.23%	-0.83	59.01%
8/15/2017	\$41.54	-0.07%	-0.03%	-0.14%	-0.21%	0.14%	1.23%	0.11	8.83%
8/16/2017	\$40.63	-2.19%	0.17%	-1.77%	-1.56%	-0.63%	1.23%	-0.51	39.24%
8/17/2017	\$39.89	-1.82%	-1.54%	0.56%	-1.51%	-0.31%	1.22%	-0.26	20.27%
8/18/2017	\$40.31	1.05%	-0.18%	1.03%	0.71%	0.34%	1.22%	0.28	22.05%
8/21/2017	\$39.52	-1.96%	0.12%	-0.95%	-0.85%	-1.11%	1.22%	-0.91	63.72%
8/22/2017	\$39.89	0.94%	1.00%	-0.18%	1.01%	-0.08%	1.22%	-0.06	5.11%
8/23/2017	\$40.24	0.88%	-0.34%	1.58%	1.03%	-0.16%	1.22%	-0.13	10.24%
8/24/2017	\$40.03	-0.52%	-0.21%	-0.11%	-0.44%	-0.08%	1.22%	-0.06	5.10%
8/25/2017	\$40.06	0.08%	0.18%	-0.03%	0.12%	-0.04%	1.22%	-0.04	2.85%
8/28/2017	\$39.35	-1.77%	0.05%	-1.04%	-1.02%	-0.75%	1.22%	-0.61	45.99%
8/29/2017	\$38.87	-1.22%	0.10%	-0.34%	-0.29%	-0.93%	1.22%	-0.77	55.63%
8/30/2017	\$38.37	-1.29%	0.49%	0.03%	0.55%	-1.84%	1.22%	-1.51	86.76%
8/31/2017	\$38.84	1.23%	0.58%	0.62%	1.23%	-0.01%	1.22%	-0.01	0.45%
9/1/2017	\$39.48	1.65%	0.20%	1.27%	1.42%	0.23%	1.21%	0.19	15.16%
9/5/2017	\$39.42	-0.15%	-0.76%	1.42%	0.38%	-0.54%	1.21%	-0.44	34.19%
9/6/2017	\$40.13	1.80%	0.31%	1.54%	1.80%	0.01%	1.21%	0.00	0.37%
9/7/2017	\$40.73	1.49%	0.01%	0.02%	-0.04%	1.53%	1.21%	1.27	79.55%
9/8/2017	\$39.30	-3.51%	-0.14%	-2.20%	-2.37%	-1.14%	1.15%	-0.99	67.88%
9/11/2017	\$39.76	1.17%	1.09%	-0.12%	1.25%	-0.08%	1.09%	-0.08	6.01%
9/12/2017	\$40.52	1.91%	0.34%	0.62%	0.90%	1.01%	1.08%	0.93	64.58%
9/13/2017	\$42.34	4.49%	0.08%	2.82%	2.60%	1.89%	1.09%	1.74	91.70%
9/14/2017	\$42.22	-0.28%	-0.08%	1.16%	0.87%	-1.15%	1.09%	-1.06	70.80%
9/15/2017	\$42.52	0.71%	0.20%	0.48%	0.61%	0.10%	1.09%	0.09	7.45%
9/18/2017	\$42.30	-0.52%	0.15%	0.35%	0.41%	-0.93%	1.09%	-0.85	60.57%
9/19/2017	\$41.75	-1.30%	0.11%	0.13%	0.15%	-1.45%	1.09%	-1.33	81.52%
9/20/2017	\$43.05	3.11%	0.06%	1.89%	1.75%	1.36%	1.09%	1.25	78.72%
9/21/2017	\$43.36	0.72%	-0.30%	1.53%	0.94%	-0.22%	1.10%	-0.20	15.65%
9/22/2017	\$43.57	0.48%	0.07%	0.88%	0.80%	-0.31%	1.08%	-0.29	22.67%
9/25/2017	\$45.06	3.42%	-0.22%	2.42%	1.89%	1.53%	1.08%	1.41	83.99%
9/26/2017	\$45.96	2.00%	0.02%	0.32%	0.23%	1.77%	1.09%	1.63	89.54%
9/27/2017	\$46.26	0.65%	0.41%	0.38%	0.79%	-0.13%	1.09%	-0.12	9.72%
9/28/2017	\$45.80	-0.99%	0.14%	-0.81%	-0.68%	-0.31%	1.09%	-0.28	22.38%
9/29/2017	\$45.80	0.00%	0.37%	-0.32%	0.04%	-0.04%	1.09%	-0.04	3.08%
10/2/2017	\$45.72	-0.17%	0.39%	0.43%	0.78%	-0.95%	1.08%	-0.88	62.05%
10/3/2017	\$45.44	-0.61%	0.22%	-0.83%	-0.64%	0.02%	1.08%	0.02	1.84%
10/4/2017	\$45.14	-0.66%	0.13%	-0.23%	-0.18%	-0.48%	1.08%	-0.44	33.96%
10/5/2017	\$45.82	1.51%	0.58%	-0.16%	0.44%	1.07%	1.08%	0.99	67.60%
10/6/2017	\$45.17	-1.42%	-0.08%	-1.05%	-1.23%	-0.19%	1.08%	-0.17	13.62%
10/9/2017	\$45.85	1.51%	-0.18%	0.30%	-0.06%	1.57%	1.08%	1.45	85.18%
10/10/2017	\$42.46	-7.39%	0.24%	-0.28%	-0.10%	-7.30%	1.08%	-6.73	100.00%
10/11/2017	\$41.96	-1.18%	0.18%	0.20%	0.30%	-1.47%	1.09%	-1.36	82.34%
10/12/2017	\$41.41	-1.31%	-0.16%	-0.20%	-0.51%	-0.80%	1.09%	-0.73	53.58%
10/13/2017	\$41.60	0.46%	0.09%	-0.17%	-0.18%	0.64%	1.09%	0.59	44.24%
10/16/2017	\$42.73	2.72%	0.18%	0.52%	0.59%	2.12%	1.09%	1.94	94.67%
10/17/2017	\$42.76	0.07%	0.07%	0.32%	0.27%	-0.20%	1.10%	-0.19	14.67%
10/18/2017	\$42.65	-0.26%	0.08%	-0.53%	-0.53%	0.27%	1.10%	0.25	19.59%

Exhibit 11B**Apache Corporation****Actual vs. Predicted Returns**

Date	Closing Price	Actual Return	Market Return	Industry Residual	Predicted Return	Company-Specific Return	Standard Error	t-Stat	Confidence Level
10/19/2017	\$42.15	-1.17%	0.04%	-0.55%	-0.60%	-0.57%	1.09%	-0.52	39.69%
10/20/2017	\$41.53	-0.88%	0.52%	0.43%	0.91%	-1.78%	1.09%	-1.63	89.67%
10/23/2017	\$40.30	-2.96%	-0.39%	-0.30%	-0.89%	-2.07%	1.09%	-1.90	94.07%
10/24/2017	\$40.14	-0.40%	0.16%	-0.05%	0.01%	-0.41%	1.10%	-0.37	28.88%
10/25/2017	\$39.51	-1.57%	-0.47%	-0.77%	-1.45%	-0.12%	1.10%	-0.11	8.79%
10/26/2017	\$39.59	0.20%	0.13%	0.75%	0.74%	-0.54%	1.10%	-0.49	37.58%
10/27/2017	\$40.74	2.90%	0.81%	1.32%	2.12%	0.78%	1.09%	0.71	52.46%
10/30/2017	\$40.81	0.17%	-0.31%	1.03%	0.47%	-0.30%	1.09%	-0.27	21.33%
10/31/2017	\$41.37	1.37%	0.10%	0.68%	0.65%	0.72%	1.09%	0.66	49.22%
11/1/2017	\$42.23	2.08%	0.16%	2.31%	2.31%	-0.24%	1.09%	-0.22	17.07%
11/2/2017	\$41.68	-1.30%	0.03%	-0.35%	-0.42%	-0.89%	1.09%	-0.81	58.19%
11/3/2017	\$42.75	2.57%	0.32%	1.00%	1.25%	1.31%	1.09%	1.20	76.92%
11/6/2017	\$45.74	6.99%	0.14%	3.17%	3.14%	3.85%	1.08%	3.55	99.95%
11/7/2017	\$45.19	-1.20%	-0.02%	-0.32%	-0.43%	-0.77%	1.11%	-0.69	51.07%
11/8/2017	\$44.51	-1.50%	0.15%	-1.12%	-1.02%	-0.49%	1.11%	-0.44	33.90%
11/9/2017	\$45.24	1.64%	-0.35%	1.12%	0.55%	1.09%	1.11%	0.98	67.26%
11/10/2017	\$44.13	-2.45%	-0.05%	-0.50%	-0.66%	-1.80%	1.11%	-1.62	89.26%
11/13/2017	\$43.49	-1.45%	0.10%	-1.08%	-1.06%	-0.39%	1.11%	-0.35	27.19%
11/14/2017	\$41.88	-3.70%	-0.22%	-2.81%	-3.23%	-0.47%	1.11%	-0.43	32.89%
11/15/2017	\$41.03	-2.03%	-0.53%	-0.60%	-1.43%	-0.60%	1.11%	-0.54	40.89%
11/16/2017	\$40.49	-1.32%	0.85%	-1.02%	-0.10%	-1.21%	1.08%	-1.12	73.72%
11/17/2017	\$41.18	1.70%	-0.26%	1.17%	0.70%	1.01%	1.08%	0.93	64.59%
11/20/2017	\$41.07	-0.27%	0.13%	-0.84%	-0.82%	0.55%	1.09%	0.51	38.81%
11/21/2017	\$41.44	0.90%	0.66%	-0.79%	-0.13%	1.03%	1.09%	0.95	65.76%
11/22/2017	\$41.54	0.24%	-0.07%	0.87%	0.65%	-0.41%	1.08%	-0.38	29.30%
11/24/2017	\$41.14	-0.96%	0.21%	0.06%	0.16%	-1.13%	1.08%	-1.04	70.17%
11/27/2017	\$39.86	-3.11%	-0.03%	-2.01%	-2.20%	-0.91%	1.08%	-0.84	60.03%
11/28/2017	\$40.27	1.03%	0.99%	-0.32%	0.72%	0.31%	1.08%	0.29	22.49%
11/29/2017	\$40.74	1.17%	-0.02%	0.86%	0.69%	0.47%	1.08%	0.44	33.78%
11/30/2017	\$41.83	2.68%	0.86%	0.65%	1.54%	1.14%	1.08%	1.05	70.66%
12/1/2017	\$44.22	5.71%	-0.20%	1.48%	1.16%	4.56%	1.08%	4.23	100.00%
12/4/2017	\$43.21	-2.28%	-0.10%	-0.88%	-1.24%	-1.05%	1.11%	-0.94	65.29%
12/5/2017	\$42.15	-2.45%	-0.37%	-0.06%	-0.68%	-1.77%	1.11%	-1.59	88.79%
12/6/2017	\$40.57	-3.75%	-0.01%	-2.27%	-2.67%	-1.08%	1.12%	-0.97	66.48%
12/7/2017	\$40.63	0.15%	0.31%	0.30%	0.54%	-0.40%	1.12%	-0.35	27.62%
12/8/2017	\$40.70	0.17%	0.56%	0.95%	1.60%	-1.43%	1.12%	-1.28	79.71%
12/11/2017	\$40.19	-1.25%	0.32%	0.64%	0.94%	-2.20%	1.12%	-1.96	94.85%
12/12/2017	\$39.72	-1.17%	0.16%	-0.42%	-0.44%	-0.73%	1.13%	-0.65	48.40%
12/13/2017	\$39.80	0.20%	-0.04%	-0.45%	-0.74%	0.94%	1.13%	0.83	59.47%
12/14/2017	\$39.42	-0.95%	-0.39%	0.17%	-0.50%	-0.45%	1.13%	-0.40	31.10%
12/15/2017	\$39.47	0.13%	0.90%	-1.77%	-0.99%	1.12%	1.13%	1.00	67.94%
12/18/2017	\$39.92	1.14%	0.54%	0.94%	1.52%	-0.38%	1.13%	-0.34	26.49%
12/19/2017	\$40.25	0.83%	-0.32%	1.49%	1.05%	-0.22%	1.12%	-0.19	15.42%
12/20/2017	\$41.26	2.51%	-0.07%	2.73%	2.74%	-0.23%	1.12%	-0.20	15.98%
12/21/2017	\$43.31	4.97%	0.20%	2.65%	2.99%	1.98%	1.12%	1.76	92.09%
12/22/2017	\$42.91	-0.92%	-0.05%	0.62%	0.48%	-1.40%	1.13%	-1.24	78.41%
12/26/2017	\$43.36	1.05%	-0.10%	2.14%	2.10%	-1.05%	1.14%	-0.93	64.55%

Exhibit 11B**Apache Corporation****Actual vs. Predicted Returns**

Date	Closing Price	Actual Return	Market Return	Industry Residual	Predicted Return	Company-Specific Return	Standard Error	t-Stat	Confidence Level
12/27/2017	\$42.89	-1.08%	0.09%	-1.04%	-1.19%	0.10%	1.13%	0.09	7.33%
12/28/2017	\$42.87	-0.05%	0.20%	0.13%	0.24%	-0.29%	1.13%	-0.26	20.18%
12/29/2017	\$42.22	-1.52%	-0.51%	0.05%	-0.71%	-0.80%	1.13%	-0.71	52.04%
1/2/2018	\$44.30	4.93%	0.83%	0.73%	1.68%	3.24%	1.14%	2.86	99.53%
1/3/2018	\$45.33	2.33%	0.64%	0.69%	1.46%	0.87%	1.15%	0.75	54.74%
1/4/2018	\$46.84	3.33%	0.42%	0.54%	1.03%	2.30%	1.15%	2.00	95.32%
1/5/2018	\$46.39	-0.96%	0.70%	-0.76%	-0.01%	-0.96%	1.16%	-0.82	58.91%
1/8/2018	\$45.92	-1.01%	0.17%	0.61%	0.79%	-1.81%	1.16%	-1.56	87.89%
1/9/2018	\$44.55	-2.98%	0.16%	-0.29%	-0.23%	-2.75%	1.16%	-2.36	98.12%
1/10/2018	\$43.99	-1.26%	-0.11%	-0.22%	-0.53%	-0.73%	1.17%	-0.62	46.39%
1/11/2018	\$46.00	4.57%	0.71%	2.14%	3.21%	1.36%	1.17%	1.16	75.11%
1/12/2018	\$47.16	2.52%	0.68%	0.19%	1.02%	1.51%	1.18%	1.28	79.83%
1/16/2018	\$46.27	-1.89%	-0.35%	-1.36%	-2.16%	0.27%	1.18%	0.23	18.24%
1/17/2018	\$46.53	0.56%	0.94%	-0.22%	0.94%	-0.38%	1.18%	-0.32	25.25%
1/18/2018	\$46.70	0.37%	-0.15%	-0.16%	-0.54%	0.90%	1.18%	0.76	55.43%
1/19/2018	\$46.05	-0.86%	0.44%	-0.85%	-0.48%	-0.37%	1.18%	-0.32	24.80%
1/22/2018	\$47.66	3.50%	0.81%	1.66%	2.88%	0.62%	1.18%	0.53	40.02%
1/23/2018	\$47.77	0.23%	0.22%	0.07%	0.27%	-0.04%	1.18%	-0.03	2.69%
1/24/2018	\$48.12	0.73%	-0.06%	0.44%	0.30%	0.43%	1.18%	0.37	28.65%
1/25/2018	\$47.45	-1.39%	0.06%	-1.21%	-1.41%	0.01%	1.18%	0.01	0.91%
1/26/2018	\$48.08	1.33%	1.19%	-0.74%	0.73%	0.60%	1.18%	0.51	38.93%
1/29/2018	\$46.65	-2.97%	-0.67%	-0.48%	-1.63%	-1.35%	1.18%	-1.15	74.70%
1/30/2018	\$44.57	-4.46%	-1.08%	-1.22%	-3.11%	-1.35%	1.18%	-1.15	74.90%
1/31/2018	\$44.87	0.67%	0.05%	0.00%	-0.07%	0.74%	1.18%	0.63	47.02%
2/1/2018	\$44.69	-0.40%	-0.05%	1.23%	1.20%	-1.60%	1.18%	-1.36	82.53%
2/2/2018	\$42.82	-4.18%	-2.11%	-1.16%	-4.59%	0.41%	1.17%	0.35	27.24%
2/5/2018	\$40.93	-4.41%	-4.10%	1.35%	-4.86%	0.44%	1.17%	0.38	29.61%
2/6/2018	\$41.12	0.46%	1.76%	-1.54%	0.59%	-0.13%	1.16%	-0.11	8.87%
2/7/2018	\$39.55	-3.82%	-0.50%	-1.13%	-2.08%	-1.74%	1.16%	-1.50	86.49%
2/8/2018	\$37.73	-4.60%	-3.74%	-0.25%	-5.57%	0.97%	1.16%	0.83	59.53%
2/9/2018	\$37.23	-1.33%	1.53%	-2.54%	-0.99%	-0.33%	1.16%	-0.29	22.53%
2/12/2018	\$38.11	2.36%	1.39%	1.64%	3.60%	-1.23%	1.15%	-1.07	71.30%
2/13/2018	\$37.70	-1.08%	0.27%	-1.15%	-1.12%	0.04%	1.15%	0.04	3.04%
2/14/2018	\$38.20	1.33%	1.37%	2.56%	4.64%	-3.31%	1.15%	-2.87	99.55%
2/15/2018	\$38.10	-0.26%	1.23%	-1.54%	-0.26%	0.00%	1.14%	0.00	0.22%
2/16/2018	\$38.11	0.03%	0.05%	-0.47%	-0.60%	0.63%	1.14%	0.55	41.86%
2/20/2018	\$38.30	0.50%	-0.58%	1.32%	0.66%	-0.16%	1.14%	-0.14	11.38%
2/21/2018	\$37.20	-2.87%	-0.55%	-2.01%	-3.15%	0.28%	1.14%	0.25	19.39%
2/22/2018	\$34.85	-6.32%	0.11%	1.51%	1.76%	-8.08%	1.14%	-7.10	100.00%
2/23/2018	\$36.13	3.67%	1.61%	1.15%	3.31%	0.36%	1.14%	0.32	24.84%
2/26/2018	\$35.98	-0.42%	1.19%	-1.09%	0.18%	-0.59%	1.13%	-0.53	40.03%
2/27/2018	\$34.80	-3.28%	-1.26%	-0.68%	-2.56%	-0.72%	1.12%	-0.64	47.74%
2/28/2018	\$34.15	-1.87%	-1.10%	-1.68%	-3.56%	1.69%	1.12%	1.51	86.78%
3/1/2018	\$34.27	0.35%	-1.32%	1.40%	-0.23%	0.59%	1.13%	0.52	39.68%
3/2/2018	\$34.78	1.49%	0.52%	0.32%	0.94%	0.55%	1.12%	0.49	37.43%
3/5/2018	\$35.21	1.24%	1.10%	0.17%	1.54%	-0.31%	1.12%	-0.27	21.48%
3/6/2018	\$35.36	0.43%	0.27%	-0.93%	-0.85%	1.28%	1.12%	1.15	74.74%

Exhibit 11B**Apache Corporation****Actual vs. Predicted Returns**

Date	Closing Price	Actual Return	Market Return	Industry Residual	Predicted Return	Company-Specific Return	Standard Error	t-Stat	Confidence Level
3/7/2018	\$34.65	-2.01%	-0.04%	-0.42%	-0.67%	-1.34%	1.12%	-1.20	76.94%
3/8/2018	\$34.97	0.92%	0.47%	-0.87%	-0.52%	1.44%	1.12%	1.29	80.06%
3/9/2018	\$35.32	1.00%	1.74%	0.41%	2.66%	-1.66%	1.12%	-1.48	86.11%
3/12/2018	\$35.41	0.25%	-0.13%	-0.17%	-0.47%	0.73%	1.12%	0.65	48.10%
3/13/2018	\$35.46	0.14%	-0.63%	-0.17%	-1.12%	1.26%	1.12%	1.12	73.66%
3/14/2018	\$35.65	0.54%	-0.54%	0.49%	-0.20%	0.74%	1.12%	0.66	48.69%
3/15/2018	\$35.34	-0.87%	-0.07%	-1.03%	-1.42%	0.55%	1.12%	0.49	37.87%
3/16/2018	\$36.14	2.26%	0.17%	1.12%	1.48%	0.79%	1.11%	0.71	52.01%
3/19/2018	\$35.57	-1.58%	-1.42%	-0.79%	-2.86%	1.28%	1.11%	1.15	74.92%
3/20/2018	\$36.27	1.97%	0.15%	1.80%	2.28%	-0.31%	1.11%	-0.28	21.98%
3/21/2018	\$38.10	5.05%	-0.17%	4.30%	4.90%	0.15%	1.11%	0.13	10.36%
3/22/2018	\$37.28	-2.15%	-2.51%	1.52%	-1.39%	-0.76%	1.11%	-0.68	50.29%
3/23/2018	\$37.01	-0.72%	-2.10%	2.76%	0.70%	-1.43%	1.11%	-1.28	79.93%
3/26/2018	\$37.28	0.73%	2.72%	-0.77%	2.29%	-1.56%	1.12%	-1.40	83.60%
3/27/2018	\$37.48	0.54%	-1.73%	0.30%	-1.67%	2.21%	1.12%	1.98	95.09%
3/28/2018	\$37.35	-0.35%	-0.27%	-2.11%	-2.90%	2.55%	1.12%	2.27	97.58%
3/29/2018	\$38.48	3.03%	1.38%	0.92%	2.56%	0.47%	1.14%	0.41	31.88%
4/2/2018	\$37.90	-1.51%	-2.23%	-1.08%	-3.83%	2.32%	1.12%	2.08	96.12%
4/3/2018	\$38.00	0.26%	1.27%	1.21%	2.78%	-2.52%	1.12%	-2.24	97.42%
4/4/2018	\$38.19	0.50%	1.16%	-1.55%	-0.61%	1.11%	1.13%	0.98	67.04%
4/5/2018	\$38.75	1.47%	0.70%	1.05%	1.95%	-0.48%	1.14%	-0.42	32.67%
4/6/2018	\$38.34	-1.06%	-2.19%	-0.50%	-3.01%	1.95%	1.14%	1.71	91.22%
4/9/2018	\$38.45	0.29%	0.36%	0.80%	1.27%	-0.99%	1.14%	-0.86	61.12%
4/10/2018	\$39.28	2.16%	1.68%	2.51%	4.66%	-2.50%	1.14%	-2.19	97.03%
4/11/2018	\$39.64	0.92%	-0.55%	2.30%	2.01%	-1.09%	1.15%	-0.95	65.53%
4/12/2018	\$39.38	-0.66%	0.84%	-0.98%	-0.29%	-0.36%	1.15%	-0.32	24.76%
4/13/2018	\$40.62	3.15%	-0.29%	2.20%	2.16%	0.99%	1.15%	0.86	60.69%
4/16/2018	\$40.79	0.42%	0.81%	-0.07%	0.72%	-0.30%	1.15%	-0.26	20.59%
4/17/2018	\$41.35	1.37%	1.07%	-0.49%	0.49%	0.88%	1.15%	0.76	55.37%
4/18/2018	\$42.84	3.60%	0.08%	1.72%	2.04%	1.56%	1.15%	1.36	82.40%
4/19/2018	\$42.03	-1.89%	-0.56%	0.51%	0.02%	-1.91%	1.15%	-1.66	90.24%
4/20/2018	\$41.45	-0.79%	-0.85%	0.35%	-0.47%	-0.31%	1.15%	-0.27	21.38%
4/23/2018	\$41.53	0.19%	0.01%	0.44%	0.51%	-0.32%	1.15%	-0.27	21.60%
4/24/2018	\$40.64	-2.14%	-1.34%	0.23%	-1.11%	-1.03%	1.15%	-0.89	62.81%
4/25/2018	\$41.00	0.89%	0.18%	0.74%	1.05%	-0.16%	1.15%	-0.14	11.31%
4/26/2018	\$40.88	-0.29%	1.04%	0.77%	1.97%	-2.26%	1.15%	-1.97	94.95%
4/27/2018	\$40.18	-1.71%	0.12%	-1.53%	-1.63%	-0.09%	1.16%	-0.07	5.93%
4/30/2018	\$40.95	1.92%	-0.82%	1.69%	1.08%	0.84%	1.16%	0.73	53.10%
5/1/2018	\$40.45	-1.22%	0.26%	-0.65%	-0.47%	-0.75%	1.16%	-0.65	48.49%
5/2/2018	\$41.06	1.51%	-0.72%	0.28%	-0.41%	1.92%	1.16%	1.66	90.18%
5/3/2018	\$38.54	-6.14%	-0.21%	-0.53%	-0.81%	-5.33%	1.16%	-4.58	100.00%
5/4/2018	\$39.49	2.46%	1.30%	-0.47%	0.78%	1.69%	1.16%	1.45	85.23%
5/7/2018	\$39.47	-0.05%	0.35%	-0.31%	0.01%	-0.06%	1.17%	-0.05	4.02%
5/8/2018	\$40.12	1.65%	-0.03%	1.74%	1.97%	-0.33%	1.16%	-0.28	21.98%
5/9/2018	\$41.25	2.82%	0.98%	0.76%	1.86%	0.96%	1.16%	0.83	59.04%
5/10/2018	\$41.64	0.95%	0.96%	-0.29%	0.65%	0.29%	1.16%	0.25	19.80%
5/11/2018	\$41.41	-0.55%	0.21%	-0.80%	-0.71%	0.16%	1.15%	0.13	10.67%

Exhibit 11B**Apache Corporation****Actual vs. Predicted Returns**

Date	Closing Price	Actual Return	Market Return	Industry Residual	Predicted Return	Company-Specific Return	Standard Error	t-Stat	Confidence Level
5/14/2018	\$42.31	2.17%	0.09%	0.56%	0.73%	1.44%	1.15%	1.25	78.61%
5/15/2018	\$42.52	0.50%	-0.68%	1.23%	0.73%	-0.24%	1.16%	-0.21	16.30%
5/16/2018	\$42.66	0.33%	0.43%	0.09%	0.56%	-0.23%	1.15%	-0.20	15.92%
5/17/2018	\$44.01	3.16%	-0.06%	2.18%	2.49%	0.68%	1.15%	0.59	44.20%
5/18/2018	\$43.91	-0.23%	-0.26%	-0.81%	-1.17%	0.94%	1.15%	0.82	58.72%
5/21/2018	\$44.28	0.84%	0.74%	0.59%	1.46%	-0.61%	1.16%	-0.53	40.49%
5/22/2018	\$43.13	-2.60%	-0.31%	-1.74%	-2.31%	-0.29%	1.15%	-0.25	19.86%
5/23/2018	\$42.57	-1.30%	0.33%	-1.25%	-1.08%	-0.22%	1.15%	-0.19	15.01%
5/24/2018	\$41.26	-3.08%	-0.20%	-1.49%	-1.91%	-1.17%	1.15%	-1.01	68.87%
5/25/2018	\$39.28	-4.80%	-0.22%	-2.55%	-3.19%	-1.61%	1.15%	-1.39	83.54%
5/29/2018	\$39.00	-0.71%	-1.15%	0.65%	-0.44%	-0.27%	1.16%	-0.23	18.42%
5/30/2018	\$40.71	4.38%	1.29%	2.15%	3.86%	0.52%	1.16%	0.45	34.96%
5/31/2018	\$40.00	-1.74%	-0.67%	-0.60%	-1.39%	-0.35%	1.15%	-0.31	23.94%
6/1/2018	\$38.97	-2.58%	1.09%	-0.86%	0.19%	-2.77%	1.15%	-2.40	98.30%
6/4/2018	\$39.18	0.54%	0.45%	-1.90%	-1.77%	2.30%	1.16%	1.99	95.18%
6/5/2018	\$39.25	0.18%	0.08%	-0.86%	-0.92%	1.09%	1.17%	0.94	65.08%
6/6/2018	\$39.58	0.84%	0.86%	-0.29%	0.59%	0.26%	1.17%	0.22	17.27%
6/7/2018	\$41.75	5.48%	-0.05%	2.07%	2.38%	3.10%	1.17%	2.66	99.16%
6/8/2018	\$42.24	1.17%	0.32%	-0.79%	-0.58%	1.75%	1.18%	1.48	86.04%
6/11/2018	\$44.60	5.59%	0.11%	0.61%	0.88%	4.71%	1.18%	3.98	99.99%
6/12/2018	\$42.76	-4.13%	0.18%	-0.30%	-0.12%	-4.00%	1.22%	-3.28	99.88%
6/13/2018	\$43.32	1.31%	-0.40%	0.53%	0.26%	1.05%	1.25%	0.85	60.18%
6/14/2018	\$42.89	-0.99%	0.28%	-1.57%	-1.60%	0.60%	1.25%	0.48	37.09%
6/15/2018	\$41.61	-2.98%	-0.09%	-3.05%	-3.77%	0.79%	1.25%	0.63	47.29%
6/18/2018	\$42.84	2.96%	-0.21%	2.09%	2.33%	0.62%	1.23%	0.51	38.63%
6/19/2018	\$43.26	0.98%	-0.40%	0.35%	0.04%	0.94%	1.23%	0.77	55.54%
6/20/2018	\$45.68	5.59%	0.17%	1.58%	2.16%	3.43%	1.23%	2.80	99.44%
6/21/2018	\$44.36	-2.89%	-0.62%	-2.18%	-3.27%	0.38%	1.23%	0.31	24.50%
6/22/2018	\$44.76	0.90%	0.19%	3.18%	4.19%	-3.29%	1.23%	-2.68	99.22%
6/25/2018	\$43.14	-3.62%	-1.37%	-1.08%	-2.64%	-0.98%	1.25%	-0.79	56.70%
6/26/2018	\$44.17	2.39%	0.22%	1.92%	2.62%	-0.24%	1.24%	-0.19	15.06%
6/27/2018	\$45.89	3.89%	-0.86%	3.18%	3.00%	0.89%	1.24%	0.72	52.55%
6/28/2018	\$45.94	0.11%	0.63%	-1.28%	-0.80%	0.91%	1.24%	0.73	53.39%
6/29/2018	\$46.75	1.76%	0.08%	0.56%	0.85%	0.91%	1.24%	0.73	53.52%
7/2/2018	\$44.68	-4.43%	0.31%	-2.15%	-2.22%	-2.21%	1.24%	-1.78	92.31%
7/3/2018	\$45.78	2.46%	-0.49%	1.38%	1.26%	1.20%	1.25%	0.97	66.48%
7/5/2018	\$46.33	1.20%	0.89%	-1.26%	-0.60%	1.80%	1.25%	1.44	84.88%
7/6/2018	\$46.91	1.25%	0.86%	0.36%	1.40%	-0.15%	1.25%	-0.12	9.66%
7/9/2018	\$48.40	3.18%	0.91%	1.12%	2.39%	0.78%	1.25%	0.62	46.67%
7/10/2018	\$48.61	0.43%	0.35%	0.09%	0.58%	-0.15%	1.25%	-0.12	9.22%
7/11/2018	\$47.68	-1.91%	-0.71%	-1.85%	-2.89%	0.98%	1.24%	0.79	57.14%
7/12/2018	\$47.07	-1.28%	0.88%	-0.62%	0.24%	-1.52%	1.24%	-1.23	77.88%
7/13/2018	\$47.45	0.81%	0.11%	0.80%	1.17%	-0.37%	1.24%	-0.30	23.28%
7/16/2018	\$46.00	-3.06%	-0.10%	-1.84%	-2.28%	-0.78%	1.24%	-0.63	46.98%
7/17/2018	\$45.26	-1.61%	0.40%	-0.96%	-0.71%	-0.90%	1.24%	-0.73	53.27%
7/18/2018	\$44.46	-1.77%	0.22%	-0.29%	-0.08%	-1.69%	1.24%	-1.36	82.53%
7/19/2018	\$44.55	0.20%	-0.38%	0.18%	-0.11%	0.31%	1.24%	0.25	19.86%

Exhibit 11B**Apache Corporation****Actual vs. Predicted Returns**

Date	Closing Price	Actual Return	Market Return	Industry Residual	Predicted Return	Company-Specific Return	Standard Error	t-Stat	Confidence Level
7/20/2018	\$44.38	0.18%	-0.09%	-0.24%	-0.33%	0.51%	1.24%	0.41	32.05%
7/23/2018	\$44.35	-0.07%	0.18%	-0.27%	-0.09%	0.02%	1.24%	0.02	1.43%
7/24/2018	\$45.05	1.58%	0.48%	1.06%	1.83%	-0.25%	1.24%	-0.21	16.24%
7/25/2018	\$45.70	1.44%	0.91%	0.28%	1.31%	0.13%	1.24%	0.10	8.33%
7/26/2018	\$45.72	0.04%	-0.30%	0.39%	0.24%	-0.19%	1.23%	-0.16	12.34%
7/27/2018	\$45.01	-1.55%	-0.66%	-0.67%	-1.41%	-0.14%	1.23%	-0.12	9.19%
7/30/2018	\$46.06	2.33%	-0.57%	1.74%	1.61%	0.72%	1.23%	0.58	44.06%
7/31/2018	\$46.00	-0.13%	0.49%	-0.98%	-0.65%	0.52%	1.23%	0.42	32.73%
8/1/2018	\$44.94	-2.30%	-0.10%	-2.01%	-2.51%	0.20%	1.23%	0.16	13.03%
8/2/2018	\$44.41	-1.18%	0.50%	-0.29%	0.21%	-1.39%	1.23%	-1.12	73.83%
8/3/2018	\$45.15	1.67%	0.48%	-2.55%	-2.59%	4.25%	1.23%	3.44	99.93%
8/6/2018	\$45.64	1.09%	0.36%	0.32%	0.81%	0.28%	1.26%	0.22	17.26%
8/7/2018	\$46.38	1.62%	0.28%	-0.31%	-0.02%	1.64%	1.26%	1.30	80.58%
8/8/2018	\$46.13	-0.54%	-0.02%	-1.46%	-1.69%	1.15%	1.26%	0.91	63.73%
8/9/2018	\$43.29	-6.16%	-0.12%	-0.22%	-0.31%	-5.85%	1.26%	-4.64	100.00%
8/10/2018	\$44.17	2.03%	-0.68%	1.29%	0.92%	1.11%	1.31%	0.84	60.06%
8/13/2018	\$43.69	-1.09%	-0.40%	-0.99%	-1.51%	0.42%	1.32%	0.32	25.00%
8/14/2018	\$43.90	0.48%	0.65%	0.39%	1.18%	-0.70%	1.31%	-0.53	40.68%
8/15/2018	\$41.98	-4.37%	-0.74%	-4.73%	-6.34%	1.97%	1.31%	1.50	86.45%
8/16/2018	\$42.17	0.45%	0.82%	0.22%	1.16%	-0.71%	1.32%	-0.54	40.79%
8/17/2018	\$42.00	-0.40%	0.34%	-0.43%	-0.09%	-0.32%	1.32%	-0.24	18.98%
8/20/2018	\$42.03	0.07%	0.25%	0.24%	0.60%	-0.53%	1.32%	-0.40	31.07%
8/21/2018	\$42.67	1.52%	0.21%	0.46%	0.82%	0.70%	1.32%	0.53	40.25%
8/22/2018	\$43.28	1.43%	-0.04%	1.66%	1.99%	-0.56%	1.32%	-0.42	32.82%
8/23/2018	\$42.86	-0.97%	-0.16%	-0.49%	-0.66%	-0.31%	1.32%	-0.24	18.71%
8/24/2018	\$43.49	1.47%	0.62%	0.04%	0.76%	0.71%	1.32%	0.54	40.78%
8/27/2018	\$43.77	0.64%	0.78%	-0.18%	0.67%	-0.03%	1.32%	-0.02	1.68%
8/28/2018	\$42.76	-2.31%	0.03%	-0.73%	-0.75%	-1.56%	1.32%	-1.18	75.99%
8/29/2018	\$43.73	2.27%	0.58%	0.51%	1.27%	1.00%	1.33%	0.75	54.73%
8/30/2018	\$44.38	1.49%	-0.43%	0.43%	0.16%	1.33%	1.33%	1.00	68.26%
8/31/2018	\$43.83	-1.24%	0.02%	-0.58%	-0.55%	-0.69%	1.32%	-0.52	39.90%
9/4/2018	\$43.18	-1.48%	-0.16%	-1.09%	-1.35%	-0.13%	1.33%	-0.10	7.93%
9/5/2018	\$43.92	1.71%	-0.28%	0.19%	0.03%	1.69%	1.32%	1.27	79.57%
9/6/2018	\$42.66	-2.87%	-0.34%	-2.32%	-2.99%	0.12%	1.33%	0.09	7.35%
9/7/2018	\$42.87	0.49%	-0.21%	-0.39%	-0.60%	1.10%	1.33%	0.83	59.06%
9/10/2018	\$43.31	1.03%	0.19%	-0.06%	0.21%	0.82%	1.33%	0.61	46.05%
9/11/2018	\$44.09	1.80%	0.38%	0.89%	1.53%	0.27%	1.33%	0.21	16.28%
9/12/2018	\$45.13	2.36%	0.04%	0.72%	0.99%	1.37%	1.33%	1.03	69.75%
9/13/2018	\$44.54	-1.31%	0.55%	-0.37%	0.23%	-1.54%	1.33%	-1.16	75.31%
9/14/2018	\$45.46	2.07%	0.04%	0.54%	0.75%	1.32%	1.33%	0.99	67.81%
9/17/2018	\$45.78	0.70%	-0.56%	0.81%	0.48%	0.23%	1.33%	0.17	13.58%
9/18/2018	\$46.26	1.05%	0.54%	0.78%	1.56%	-0.51%	1.33%	-0.38	29.94%
9/19/2018	\$46.80	1.17%	0.13%	0.75%	1.11%	0.06%	1.33%	0.04	3.43%
9/20/2018	\$45.67	-2.41%	0.79%	-1.47%	-0.83%	-1.58%	1.32%	-1.20	76.70%
9/21/2018	\$45.96	0.64%	-0.03%	0.86%	1.06%	-0.43%	1.33%	-0.32	25.16%
9/24/2018	\$47.48	3.31%	-0.35%	2.28%	2.42%	0.89%	1.33%	0.67	49.74%
9/25/2018	\$47.78	0.63%	-0.12%	1.12%	1.30%	-0.67%	1.33%	-0.50	38.36%

Exhibit 11B**Apache Corporation****Actual vs. Predicted Returns**

Date	Closing Price	Actual Return	Market Return	Industry Residual	Predicted Return	Company-Specific Return	Standard Error	t-Stat	Confidence Level
9/26/2018	\$47.23	-1.15%	-0.33%	-0.91%	-1.32%	0.17%	1.33%	0.13	10.16%
9/27/2018	\$47.43	0.42%	0.29%	0.25%	0.65%	-0.23%	1.32%	-0.17	13.79%
9/28/2018	\$47.67	0.51%	0.00%	0.36%	0.50%	0.01%	1.32%	0.01	0.61%
10/1/2018	\$48.36	1.45%	0.36%	1.61%	2.35%	-0.90%	1.32%	-0.68	50.16%
10/2/2018	\$48.55	0.39%	-0.04%	-0.74%	-0.82%	1.22%	1.32%	0.92	64.06%
10/3/2018	\$48.88	0.68%	0.07%	1.07%	1.41%	-0.73%	1.32%	-0.55	41.88%
10/4/2018	\$48.48	-0.82%	-0.79%	0.19%	-0.49%	-0.33%	1.32%	-0.25	19.40%
10/5/2018	\$47.98	-1.03%	-0.55%	0.96%	0.66%	-1.69%	1.32%	-1.28	79.70%
10/8/2018	\$48.00	0.04%	-0.04%	-0.65%	-0.71%	0.75%	1.33%	0.56	42.59%
10/9/2018	\$49.30	2.71%	-0.11%	1.83%	2.11%	0.59%	1.33%	0.45	34.54%
10/10/2018	\$46.40	-5.88%	-3.29%	-1.49%	-4.96%	-0.93%	1.33%	-0.70	51.48%
10/11/2018	\$44.63	-3.81%	-2.06%	-1.02%	-3.29%	-0.52%	1.32%	-0.40	30.76%
10/12/2018	\$45.13	1.12%	1.43%	-0.42%	1.14%	-0.02%	1.32%	-0.01	1.08%
10/15/2018	\$44.57	-1.24%	-0.59%	0.65%	0.22%	-1.46%	1.32%	-1.10	72.91%
10/16/2018	\$44.51	-0.13%	2.15%	-1.69%	0.42%	-0.56%	1.32%	-0.42	32.57%
10/17/2018	\$43.28	-2.76%	-0.02%	-1.72%	-1.98%	-0.78%	1.32%	-0.60	44.76%
10/18/2018	\$42.33	-2.19%	-1.43%	0.38%	-0.99%	-1.20%	1.32%	-0.91	63.68%
10/19/2018	\$42.10	0.05%	-0.03%	-0.56%	-0.64%	0.69%	1.32%	0.52	39.67%
10/22/2018	\$41.29	-1.92%	-0.43%	-1.00%	-1.56%	-0.36%	1.32%	-0.27	21.62%
10/23/2018	\$39.78	-3.66%	-0.55%	-3.11%	-4.18%	0.52%	1.31%	0.40	30.91%
10/24/2018	\$37.97	-4.55%	-3.09%	-1.82%	-5.37%	0.82%	1.31%	0.63	47.08%
10/25/2018	\$38.15	0.47%	1.86%	-0.69%	1.27%	-0.80%	1.31%	-0.61	45.86%
10/26/2018	\$37.39	-1.99%	-1.73%	1.08%	-0.54%	-1.45%	1.31%	-1.11	72.98%
10/29/2018	\$36.18	-3.24%	-0.65%	-2.73%	-3.84%	0.60%	1.31%	0.46	35.14%
10/30/2018	\$37.45	3.51%	1.58%	1.28%	3.21%	0.30%	1.31%	0.23	18.21%
10/31/2018	\$37.83	1.01%	1.09%	-1.01%	0.04%	0.98%	1.31%	0.74	54.21%
11/1/2018	\$36.39	-3.81%	1.06%	0.28%	1.50%	-5.31%	1.31%	-4.04	99.99%
11/2/2018	\$35.94	-1.24%	-0.62%	-1.92%	-2.89%	1.65%	1.32%	1.25	78.91%
11/5/2018	\$37.58	4.56%	0.56%	2.11%	3.05%	1.52%	1.32%	1.15	74.94%
11/6/2018	\$37.34	-0.64%	0.63%	-0.52%	0.12%	-0.75%	1.32%	-0.57	43.20%
11/7/2018	\$37.81	1.26%	2.12%	0.31%	2.65%	-1.39%	1.30%	-1.07	71.26%
11/8/2018	\$36.02	-4.73%	-0.20%	-3.02%	-3.66%	-1.08%	1.30%	-0.82	58.97%
11/9/2018	\$37.08	2.94%	-0.90%	1.39%	0.59%	2.35%	1.31%	1.80	92.69%
11/12/2018	\$36.05	-2.78%	-1.97%	-1.31%	-3.61%	0.83%	1.31%	0.63	47.26%
11/13/2018	\$35.24	-2.25%	-0.14%	-1.99%	-2.44%	0.19%	1.31%	0.14	11.44%
11/14/2018	\$36.12	2.50%	-0.73%	0.87%	0.20%	2.30%	1.31%	1.76	91.96%
11/15/2018	\$36.99	2.41%	1.09%	1.27%	2.64%	-0.23%	1.32%	-0.17	13.66%
11/16/2018	\$37.43	1.19%	0.23%	1.12%	1.55%	-0.36%	1.32%	-0.28	21.71%
11/19/2018	\$36.53	-2.40%	-1.66%	1.90%	0.41%	-2.81%	1.32%	-2.14	96.63%
11/20/2018	\$34.67	-5.09%	-1.81%	-2.25%	-4.45%	-0.64%	1.33%	-0.48	36.86%
11/21/2018	\$36.03	3.92%	0.31%	2.22%	2.88%	1.04%	1.33%	0.78	56.64%
11/23/2018	\$34.86	-3.25%	-0.65%	-3.32%	-4.47%	1.22%	1.33%	0.92	64.04%
11/26/2018	\$35.37	1.46%	1.57%	-0.35%	1.39%	0.07%	1.33%	0.05	4.37%
11/27/2018	\$35.08	-0.82%	0.33%	-0.97%	-0.70%	-0.12%	1.33%	-0.09	6.98%
11/28/2018	\$35.26	0.51%	2.30%	-1.16%	1.30%	-0.78%	1.33%	-0.59	44.49%
11/29/2018	\$35.54	0.79%	-0.20%	1.44%	1.44%	-0.65%	1.33%	-0.49	37.52%
11/30/2018	\$35.13	-1.15%	0.84%	-2.02%	-1.33%	0.18%	1.33%	0.14	10.80%

Exhibit 11B**Apache Corporation****Actual vs. Predicted Returns**

Date	Closing Price	Actual Return	Market Return	Industry Residual	Predicted Return	Company-Specific Return	Standard Error	t-Stat	Confidence Level
12/3/2018	\$36.49	3.87%	1.09%	3.01%	4.51%	-0.64%	1.30%	-0.49	37.85%
12/4/2018	\$35.04	-3.97%	-3.23%	-0.14%	-3.71%	-0.27%	1.30%	-0.21	16.36%
12/6/2018	\$33.90	-3.25%	-0.12%	-2.03%	-2.36%	-0.89%	1.29%	-0.69	51.01%
12/7/2018	\$33.01	-2.63%	-2.32%	2.61%	0.34%	-2.96%	1.29%	-2.30	97.76%
12/10/2018	\$31.26	-5.30%	0.18%	-2.12%	-2.10%	-3.21%	1.30%	-2.46	98.54%
12/11/2018	\$30.57	-2.21%	-0.03%	0.37%	0.37%	-2.57%	1.32%	-1.96	94.84%
12/12/2018	\$31.33	2.49%	0.54%	0.01%	0.61%	1.88%	1.32%	1.43	84.48%
12/13/2018	\$31.30	-0.10%	0.00%	-0.31%	-0.33%	0.24%	1.32%	0.18	14.25%
12/14/2018	\$30.24	-3.39%	-1.90%	-0.87%	-3.05%	-0.33%	1.32%	-0.25	19.98%
12/17/2018	\$30.17	-0.23%	-2.07%	-0.68%	-3.07%	2.83%	1.32%	2.14	96.70%
12/18/2018	\$29.24	-3.08%	0.02%	-2.60%	-2.84%	-0.24%	1.33%	-0.18	14.42%
12/19/2018	\$28.75	-1.68%	-1.53%	0.83%	-0.76%	-0.91%	1.33%	-0.69	50.67%
12/20/2018	\$27.00	-6.09%	-1.57%	-1.49%	-3.39%	-2.70%	1.33%	-2.02	95.60%
12/21/2018	\$26.55	-1.67%	-2.06%	0.54%	-1.75%	0.08%	1.34%	0.06	4.98%
12/24/2018	\$25.40	-4.33%	-2.70%	-2.00%	-5.28%	0.95%	1.34%	0.71	52.24%
12/26/2018	\$27.04	6.46%	4.96%	2.69%	8.54%	-2.08%	1.34%	-1.56	87.93%
12/27/2018	\$26.74	-1.11%	0.87%	-0.39%	0.51%	-1.62%	1.34%	-1.21	77.14%
12/28/2018	\$26.34	-1.50%	-0.11%	-1.13%	-1.42%	-0.08%	1.34%	-0.06	4.49%
12/31/2018	\$26.25	-0.34%	0.86%	-0.30%	0.60%	-0.94%	1.35%	-0.70	51.60%
1/2/2019	\$27.11	3.28%	0.13%	2.70%	3.05%	0.23%	1.34%	0.17	13.31%
1/3/2019	\$27.18	0.26%	-2.45%	2.27%	-0.33%	0.59%	1.33%	0.45	34.43%
1/4/2019	\$28.32	4.19%	3.43%	0.05%	3.76%	0.43%	1.33%	0.33	25.61%
1/7/2019	\$28.93	2.15%	0.70%	0.67%	1.45%	0.71%	1.32%	0.54	40.79%
1/8/2019	\$29.36	1.49%	0.97%	0.14%	1.17%	0.31%	1.32%	0.24	18.73%
1/9/2019	\$30.86	5.11%	0.44%	2.30%	2.96%	2.15%	1.31%	1.64	89.74%
1/10/2019	\$30.96	0.32%	0.45%	0.51%	1.05%	-0.72%	1.31%	-0.55	41.87%
1/11/2019	\$31.10	0.45%	-0.01%	-1.64%	-1.84%	2.29%	1.31%	1.75	91.90%
1/14/2019	\$31.57	1.51%	-0.51%	0.69%	0.15%	1.36%	1.31%	1.04	69.92%
1/15/2019	\$31.75	0.57%	1.07%	-0.57%	0.53%	0.04%	1.31%	0.03	2.21%
1/16/2019	\$31.21	-1.70%	0.22%	-0.40%	-0.22%	-1.49%	1.31%	-1.14	74.27%
1/17/2019	\$31.69	1.54%	0.77%	0.35%	1.19%	0.35%	1.31%	0.27	20.94%
1/18/2019	\$32.09	2.05%	1.32%	-0.07%	1.34%	0.71%	1.31%	0.54	41.10%
1/22/2019	\$31.52	-1.78%	-1.41%	-1.81%	-3.56%	1.79%	1.31%	1.36	82.48%
1/23/2019	\$30.97	-1.74%	0.22%	-1.17%	-1.06%	-0.68%	1.32%	-0.52	39.40%
1/24/2019	\$31.84	2.81%	0.14%	0.51%	0.67%	2.14%	1.32%	1.62	89.41%
1/25/2019	\$32.06	0.69%	0.85%	0.82%	1.79%	-1.10%	1.32%	-0.83	59.22%
1/28/2019	\$32.29	0.72%	-0.78%	-0.67%	-1.61%	2.33%	1.33%	1.76	91.95%
1/29/2019	\$33.08	2.45%	-0.14%	0.69%	0.57%	1.87%	1.33%	1.41	83.88%
1/30/2019	\$33.40	0.97%	1.57%	-0.36%	1.30%	-0.34%	1.33%	-0.25	19.94%
1/31/2019	\$32.82	-1.74%	0.88%	-0.76%	0.13%	-1.87%	1.33%	-1.41	83.94%
2/1/2019	\$32.65	-0.52%	0.10%	0.80%	0.97%	-1.49%	1.33%	-1.12	73.43%
2/4/2019	\$33.13	1.47%	0.68%	0.27%	1.01%	0.46%	1.34%	0.35	27.01%
2/5/2019	\$32.83	-0.91%	0.47%	-1.60%	-1.24%	0.33%	1.33%	0.25	19.58%
2/6/2019	\$31.85	-2.98%	-0.21%	-1.14%	-1.46%	-1.53%	1.33%	-1.15	74.73%
2/7/2019	\$30.53	-4.14%	-0.92%	-2.55%	-3.77%	-0.38%	1.33%	-0.28	22.32%
2/8/2019	\$29.87	-2.16%	0.10%	-1.00%	-0.99%	-1.17%	1.33%	-0.88	62.17%
2/11/2019	\$30.35	1.61%	0.07%	1.51%	1.72%	-0.11%	1.33%	-0.08	6.71%

Exhibit 11B**Apache Corporation****Actual vs. Predicted Returns**

Date	Closing Price	Actual Return	Market Return	Industry Residual	Predicted Return	Company-Specific Return	Standard Error	t-Stat	Confidence Level
2/12/2019	\$31.08	2.41%	1.30%	-0.20%	1.17%	1.24%	1.33%	0.93	64.72%
2/13/2019	\$32.28	3.86%	0.31%	1.31%	1.77%	2.10%	1.33%	1.58	88.36%
2/14/2019	\$32.67	1.21%	-0.23%	1.41%	1.33%	-0.12%	1.34%	-0.09	7.12%
2/15/2019	\$33.30	1.93%	1.10%	1.02%	2.34%	-0.41%	1.32%	-0.31	24.28%
2/19/2019	\$33.31	0.03%	0.16%	-0.54%	-0.39%	0.42%	1.33%	0.31	24.55%
2/20/2019	\$33.80	1.47%	0.20%	-0.23%	0.00%	1.47%	1.32%	1.11	73.17%
2/21/2019	\$33.37	-1.27%	-0.34%	-2.18%	-2.76%	1.49%	1.33%	1.12	73.62%
2/22/2019	\$33.47	0.30%	0.64%	-0.36%	0.35%	-0.05%	1.33%	-0.04	2.80%
2/25/2019	\$33.46	-0.03%	0.14%	-0.14%	0.03%	-0.06%	1.33%	-0.05	3.72%
2/26/2019	\$33.09	-1.11%	-0.08%	-0.28%	-0.35%	-0.75%	1.33%	-0.57	42.87%
2/27/2019	\$33.56	1.42%	-0.04%	0.70%	0.76%	0.66%	1.33%	0.50	37.96%
2/28/2019	\$33.18	-1.13%	-0.25%	-1.10%	-1.43%	0.30%	1.33%	0.23	17.96%
3/1/2019	\$33.99	2.44%	0.70%	1.28%	2.21%	0.23%	1.33%	0.17	13.75%
3/4/2019	\$33.67	-0.94%	-0.39%	1.11%	0.86%	-1.80%	1.33%	-1.36	82.41%
3/5/2019	\$33.73	0.18%	-0.11%	-0.95%	-1.12%	1.29%	1.33%	0.97	66.78%
3/6/2019	\$32.73	-2.96%	-0.65%	-1.54%	-2.33%	-0.63%	1.33%	-0.47	36.29%
3/7/2019	\$33.27	1.65%	-0.79%	-0.06%	-0.88%	2.53%	1.33%	1.90	94.15%
3/8/2019	\$31.95	-3.97%	-0.20%	-3.54%	-4.05%	0.08%	1.34%	0.06	4.92%
3/11/2019	\$32.75	2.50%	1.47%	-0.56%	1.03%	1.48%	1.34%	1.11	73.00%
3/12/2019	\$33.68	2.84%	0.30%	0.96%	1.43%	1.41%	1.34%	1.06	70.78%
3/13/2019	\$34.32	1.90%	0.70%	0.99%	1.92%	-0.02%	1.34%	-0.01	0.92%
3/14/2019	\$34.27	-0.15%	-0.05%	0.37%	0.41%	-0.55%	1.34%	-0.41	32.04%
3/15/2019	\$34.45	0.53%	0.50%	-0.50%	0.05%	0.47%	1.34%	0.35	27.59%
3/18/2019	\$35.01	1.63%	0.37%	1.32%	1.91%	-0.28%	1.34%	-0.21	16.72%
3/19/2019	\$34.49	-1.49%	-0.01%	-0.38%	-0.37%	-1.11%	1.34%	-0.83	59.38%
3/20/2019	\$35.29	2.32%	-0.29%	2.66%	2.66%	-0.34%	1.34%	-0.25	19.78%
3/21/2019	\$36.08	2.24%	1.09%	-0.52%	0.67%	1.56%	1.34%	1.17	75.62%
3/22/2019	\$34.82	-3.49%	-1.89%	-1.47%	-3.66%	0.17%	1.34%	0.13	10.01%
3/25/2019	\$34.92	0.29%	-0.08%	0.73%	0.75%	-0.46%	1.34%	-0.34	26.89%
3/26/2019	\$35.66	2.12%	0.72%	1.48%	2.48%	-0.36%	1.33%	-0.27	21.39%
3/27/2019	\$35.02	-1.79%	-0.46%	0.31%	-0.17%	-1.63%	1.33%	-1.22	77.71%
3/28/2019	\$35.09	0.20%	0.37%	0.28%	0.76%	-0.56%	1.33%	-0.42	32.77%
3/29/2019	\$34.66	-1.23%	0.68%	-1.36%	-0.69%	-0.53%	1.33%	-0.40	31.26%
4/1/2019	\$34.97	0.89%	1.16%	-0.10%	1.25%	-0.36%	1.33%	-0.27	21.29%
4/2/2019	\$34.28	-1.97%	0.01%	-1.27%	-1.40%	-0.57%	1.32%	-0.43	33.21%
4/3/2019	\$33.06	-3.56%	0.21%	-1.99%	-1.98%	-1.58%	1.32%	-1.19	76.62%
4/4/2019	\$33.37	0.94%	0.23%	0.08%	0.34%	0.60%	1.32%	0.45	34.96%
4/5/2019	\$35.57	6.59%	0.46%	2.41%	3.27%	3.32%	1.31%	2.53	98.79%
4/8/2019	\$35.56	-0.03%	0.11%	0.61%	0.83%	-0.86%	1.33%	-0.65	48.12%
4/9/2019	\$34.88	-1.91%	-0.58%	-0.88%	-1.71%	-0.20%	1.33%	-0.15	12.04%
4/10/2019	\$35.72	2.41%	0.36%	0.71%	1.24%	1.17%	1.33%	0.88	62.01%
4/11/2019	\$35.64	-0.22%	0.01%	-0.73%	-0.84%	0.62%	1.32%	0.47	36.08%
4/12/2019	\$36.50	2.41%	0.67%	6.64%	8.59%	-6.17%	1.32%	-4.68	100.00%
4/15/2019	\$35.95	-1.51%	-0.06%	-1.02%	-1.19%	-0.32%	1.37%	-0.23	18.34%
4/16/2019	\$36.56	1.70%	0.05%	0.58%	0.67%	1.02%	1.37%	0.75	54.42%
4/17/2019	\$36.84	0.77%	-0.22%	0.40%	0.16%	0.61%	1.37%	0.44	34.22%
4/18/2019	\$35.87	-1.95%	0.16%	0.38%	0.61%	-2.56%	1.37%	-1.87	93.73%

Exhibit 11B**Apache Corporation****Actual vs. Predicted Returns**

Date	Closing Price	Actual Return	Market Return	Industry Residual	Predicted Return	Company-Specific Return	Standard Error	t-Stat	Confidence Level
4/22/2019	\$37.09	3.40%	0.10%	2.20%	2.49%	0.92%	1.38%	0.66	49.32%
4/23/2019	\$36.43	-1.78%	0.89%	-1.31%	-0.33%	-1.45%	1.38%	-1.05	70.64%
4/24/2019	\$35.48	-2.61%	-0.22%	-0.26%	-0.56%	-2.04%	1.38%	-1.48	86.06%
4/25/2019	\$34.06	-4.00%	-0.04%	-1.17%	-1.33%	-2.67%	1.38%	-1.94	94.62%
4/26/2019	\$33.06	-2.94%	0.47%	-2.30%	-1.93%	-1.01%	1.38%	-0.73	53.29%
4/29/2019	\$33.22	0.48%	0.11%	-0.48%	-0.38%	0.87%	1.38%	0.63	46.94%
4/30/2019	\$32.91	-0.93%	0.10%	-0.26%	-0.15%	-0.78%	1.38%	-0.57	42.76%
5/1/2019	\$31.71	-3.65%	-0.75%	-1.70%	-2.79%	-0.85%	1.38%	-0.62	46.36%
5/2/2019	\$29.78	-6.09%	-0.21%	-2.16%	-2.63%	-3.45%	1.38%	-2.51	98.72%
5/3/2019	\$30.59	2.72%	0.97%	0.41%	1.66%	1.06%	1.38%	0.77	55.79%
5/6/2019	\$30.78	0.62%	-0.44%	1.06%	0.57%	0.05%	1.37%	0.04	2.97%
5/7/2019	\$30.51	-0.88%	-1.65%	1.05%	-0.98%	0.10%	1.37%	0.07	5.71%
5/8/2019	\$30.61	0.33%	-0.16%	2.20%	2.19%	-1.86%	1.37%	-1.35	82.33%
5/9/2019	\$31.06	1.47%	-0.27%	0.14%	-0.21%	1.68%	1.38%	1.22	77.57%
5/10/2019	\$31.22	0.52%	0.41%	-0.12%	0.37%	0.15%	1.38%	0.11	8.44%
5/13/2019	\$30.14	-3.46%	-2.41%	1.73%	-1.17%	-2.29%	1.38%	-1.66	90.14%
5/14/2019	\$31.01	2.89%	0.81%	0.57%	1.62%	1.27%	1.39%	0.91	63.77%
5/15/2019	\$31.17	0.52%	0.60%	-0.55%	0.16%	0.35%	1.39%	0.25	20.06%
5/16/2019	\$31.23	0.19%	0.92%	-0.11%	1.02%	-0.83%	1.39%	-0.60	45.11%
5/17/2019	\$30.41	-2.63%	-0.57%	-0.27%	-1.04%	-1.59%	1.39%	-1.15	74.73%
5/20/2019	\$29.93	-1.58%	-0.67%	1.06%	0.24%	-1.82%	1.39%	-1.30	80.68%
5/21/2019	\$30.83	3.01%	0.85%	1.05%	2.16%	0.85%	1.39%	0.61	45.74%
5/22/2019	\$29.49	-4.35%	-0.28%	-2.18%	-2.74%	-1.61%	1.39%	-1.15	75.05%
5/23/2019	\$27.66	-6.21%	-1.18%	-3.28%	-5.10%	-1.10%	1.40%	-0.79	56.95%
5/24/2019	\$27.33	-1.19%	0.15%	-0.40%	-0.30%	-0.90%	1.40%	-0.64	47.80%
5/28/2019	\$26.91	-1.54%	-0.84%	0.91%	-0.15%	-1.38%	1.39%	-0.99	67.71%
5/29/2019	\$26.66	-0.93%	-0.69%	0.46%	-0.44%	-0.49%	1.39%	-0.35	27.41%
5/30/2019	\$26.18	-1.80%	0.22%	-2.15%	-2.04%	0.24%	1.39%	0.17	13.84%
5/31/2019	\$26.07	-0.42%	-1.30%	0.34%	-1.38%	0.96%	1.39%	0.69	50.70%
6/3/2019	\$26.89	3.15%	-0.28%	0.99%	0.66%	2.49%	1.39%	1.79	92.59%
6/4/2019	\$28.34	5.39%	2.15%	-1.84%	0.80%	4.59%	1.39%	3.30	99.89%
6/5/2019	\$28.04	-1.06%	0.83%	-3.60%	-2.72%	1.66%	1.42%	1.17	75.79%
6/6/2019	\$28.84	2.85%	0.64%	0.86%	1.72%	1.13%	1.42%	0.80	57.30%
6/7/2019	\$28.95	0.38%	1.06%	-0.76%	0.59%	-0.21%	1.42%	-0.14	11.49%
6/10/2019	\$28.88	-0.24%	0.47%	-0.21%	0.36%	-0.60%	1.41%	-0.43	33.09%
6/11/2019	\$28.85	-0.10%	-0.03%	0.62%	0.55%	-0.66%	1.40%	-0.47	36.07%
6/12/2019	\$28.01	-2.91%	-0.20%	-1.29%	-1.66%	-1.26%	1.37%	-0.92	63.99%
6/13/2019	\$28.36	1.25%	0.44%	1.05%	1.60%	-0.35%	1.35%	-0.26	20.35%
6/14/2019	\$27.49	-3.07%	-0.15%	-0.96%	-1.25%	-1.82%	1.34%	-1.35	82.27%
6/17/2019	\$27.84	1.27%	0.09%	1.04%	1.14%	0.13%	1.35%	0.10	7.65%
6/18/2019	\$28.64	2.87%	0.97%	0.85%	2.12%	0.76%	1.35%	0.56	42.38%
6/19/2019	\$28.62	-0.07%	0.30%	-0.55%	-0.23%	0.16%	1.35%	0.12	9.33%
6/20/2019	\$29.51	3.11%	0.96%	1.43%	2.68%	0.43%	1.35%	0.32	25.18%
6/21/2019	\$29.64	0.44%	-0.12%	0.48%	0.24%	0.20%	1.33%	0.15	11.71%
6/24/2019	\$29.07	-1.92%	-0.17%	-0.77%	-1.10%	-0.82%	1.32%	-0.63	46.76%
6/25/2019	\$28.22	-2.92%	-0.95%	0.49%	-0.85%	-2.08%	1.32%	-1.58	88.41%
6/26/2019	\$29.03	2.87%	-0.12%	3.14%	3.00%	-0.13%	1.32%	-0.10	7.69%

Exhibit 11B**Apache Corporation****Actual vs. Predicted Returns**

Date	Closing Price	Actual Return	Market Return	Industry Residual	Predicted Return	Company-Specific Return	Standard Error	t-Stat	Confidence Level
6/27/2019	\$28.64	-1.34%	0.40%	-1.44%	-1.03%	-0.31%	1.32%	-0.24	18.56%
6/28/2019	\$28.97	1.15%	0.58%	-0.03%	0.64%	0.51%	1.32%	0.39	29.99%
7/1/2019	\$29.20	0.79%	0.77%	-0.33%	0.59%	0.20%	1.32%	0.15	12.10%
7/2/2019	\$27.40	-6.16%	0.30%	-3.86%	-3.65%	-2.52%	1.32%	-1.91	94.30%
7/3/2019	\$27.28	-0.44%	0.79%	-0.57%	0.37%	-0.80%	1.32%	-0.61	45.80%
7/5/2019	\$27.18	-0.37%	-0.17%	0.86%	0.52%	-0.88%	1.31%	-0.67	49.90%
7/8/2019	\$26.50	-2.50%	-0.48%	0.60%	-0.17%	-2.33%	1.31%	-1.78	92.30%
7/9/2019	\$26.95	1.70%	0.15%	-0.36%	-0.30%	2.00%	1.32%	1.52	86.99%
7/10/2019	\$27.47	1.93%	0.45%	1.42%	1.91%	0.02%	1.32%	0.02	1.35%
7/11/2019	\$26.74	-2.66%	0.23%	-0.34%	-0.18%	-2.48%	1.32%	-1.87	93.76%
7/12/2019	\$26.91	0.64%	0.47%	0.12%	0.60%	0.03%	1.33%	0.02	1.89%
7/15/2019	\$26.35	-2.08%	0.02%	-2.14%	-2.31%	0.23%	1.33%	0.17	13.46%
7/16/2019	\$25.24	-4.21%	-0.34%	-0.75%	-1.37%	-2.84%	1.33%	-2.14	96.66%
7/17/2019	\$24.48	-3.01%	-0.65%	-0.47%	-1.52%	-1.49%	1.34%	-1.11	73.39%
7/18/2019	\$23.55	-3.80%	0.37%	0.06%	0.41%	-4.21%	1.34%	-3.14	99.81%
7/19/2019	\$24.03	3.10%	-0.61%	2.13%	1.17%	1.93%	1.36%	1.41	84.09%
7/22/2019	\$23.86	-0.71%	0.29%	-0.33%	-0.10%	-0.60%	1.37%	-0.44	34.05%
7/23/2019	\$24.31	1.89%	0.69%	-0.46%	0.30%	1.59%	1.37%	1.16	75.22%
7/24/2019	\$24.79	1.97%	0.47%	-0.39%	0.09%	1.89%	1.37%	1.38	83.01%
7/25/2019	\$24.18	-2.46%	-0.53%	-1.30%	-2.20%	-0.26%	1.38%	-0.19	14.97%
7/26/2019	\$23.93	-1.03%	0.74%	-1.69%	-0.89%	-0.15%	1.38%	-0.11	8.38%
7/29/2019	\$23.33	-2.51%	-0.16%	-0.52%	-0.92%	-1.59%	1.38%	-1.15	74.87%
7/30/2019	\$24.10	3.30%	-0.25%	3.24%	2.82%	0.48%	1.38%	0.35	27.03%
7/31/2019	\$24.42	1.33%	-1.09%	1.50%	-0.10%	1.42%	1.38%	1.03	69.71%
8/1/2019	\$24.12	-1.23%	-0.89%	-3.32%	-4.78%	3.55%	1.38%	2.57	98.92%
8/2/2019	\$24.19	0.29%	-0.72%	-0.13%	-1.25%	1.54%	1.39%	1.11	73.10%
8/5/2019	\$23.25	-3.89%	-2.97%	0.28%	-3.82%	-0.07%	1.37%	-0.05	3.87%
8/6/2019	\$22.92	-1.42%	1.31%	-2.75%	-1.29%	-0.12%	1.36%	-0.09	7.27%
8/7/2019	\$21.99	-4.06%	0.08%	-0.27%	-0.34%	-3.72%	1.36%	-2.72	99.31%
8/8/2019	\$22.45	2.09%	1.90%	0.97%	3.33%	-1.24%	1.38%	-0.90	62.99%
8/9/2019	\$21.97	-2.14%	-0.65%	-0.14%	-1.17%	-0.96%	1.38%	-0.70	51.43%
8/12/2019	\$21.55	-1.91%	-1.18%	0.49%	-1.21%	-0.70%	1.33%	-0.53	40.11%
8/13/2019	\$21.92	1.72%	1.48%	-0.52%	1.23%	0.49%	1.33%	0.37	28.65%
8/14/2019	\$20.08	-8.39%	-2.90%	-0.67%	-4.70%	-3.70%	1.33%	-2.78	99.41%
8/15/2019	\$19.93	-0.75%	0.27%	-0.78%	-0.65%	-0.10%	1.35%	-0.07	5.75%
8/16/2019	\$20.84	4.57%	1.46%	-0.09%	1.69%	2.87%	1.35%	2.13	96.61%
8/19/2019	\$21.90	5.09%	1.22%	2.10%	3.75%	1.34%	1.36%	0.98	67.30%
8/20/2019	\$21.75	-0.68%	-0.78%	-0.33%	-1.60%	0.92%	1.36%	0.67	49.84%
8/21/2019	\$21.73	-0.09%	0.83%	-0.49%	0.48%	-0.57%	1.36%	-0.42	32.42%
8/22/2019	\$21.46	-1.24%	-0.05%	-0.86%	-1.16%	-0.09%	1.36%	-0.06	5.01%
8/23/2019	\$20.69	-3.59%	-2.59%	-1.00%	-4.84%	1.26%	1.36%	0.92	64.30%
8/26/2019	\$21.00	1.50%	1.11%	-0.90%	0.39%	1.10%	1.37%	0.81	58.06%
8/27/2019	\$20.96	-0.19%	-0.32%	-0.33%	-0.97%	0.78%	1.36%	0.57	43.21%
8/28/2019	\$21.63	3.20%	0.66%	1.71%	2.57%	0.62%	1.37%	0.46	35.18%
8/29/2019	\$22.04	1.90%	1.29%	0.32%	1.97%	-0.08%	1.36%	-0.06	4.55%
8/30/2019	\$21.57	-2.13%	0.08%	-0.31%	-0.38%	-1.75%	1.36%	-1.29	80.01%
9/3/2019	\$21.41	-0.74%	-0.68%	0.25%	-0.86%	0.11%	1.36%	0.08	6.62%

Exhibit 11B**Apache Corporation****Actual vs. Predicted Returns**

Date	Closing Price	Actual Return	Market Return	Industry Residual	Predicted Return	Company-Specific Return	Standard Error	t-Stat	Confidence Level
9/4/2019	\$22.04	2.94%	1.09%	0.95%	2.36%	0.58%	1.36%	0.43	33.01%
9/5/2019	\$22.67	2.86%	1.32%	-1.03%	0.59%	2.27%	1.36%	1.66	90.26%
9/6/2019	\$22.35	-1.41%	0.09%	-0.10%	-0.13%	-1.28%	1.36%	-0.94	65.01%
9/9/2019	\$23.65	5.82%	0.00%	3.39%	3.43%	2.38%	1.37%	1.74	91.72%
9/10/2019	\$23.70	0.21%	0.04%	1.18%	1.18%	-0.97%	1.37%	-0.71	51.93%
9/11/2019	\$23.99	1.22%	0.73%	0.25%	1.15%	0.08%	1.37%	0.06	4.42%
9/12/2019	\$23.84	-0.63%	0.30%	-2.24%	-2.13%	1.50%	1.37%	1.09	72.52%
9/13/2019	\$24.34	2.10%	-0.04%	1.49%	1.37%	0.73%	1.37%	0.53	40.49%
9/16/2019	\$28.45	16.89%	-0.31%	8.26%	8.22%	8.67%	1.37%	6.33	100.00%
9/17/2019	\$26.02	-8.54%	0.26%	-3.76%	-4.21%	-4.33%	1.46%	-2.96	99.66%
9/18/2019	\$25.43	-2.27%	0.03%	-1.18%	-1.52%	-0.75%	1.49%	-0.50	38.45%
9/19/2019	\$25.76	1.30%	0.01%	-0.63%	-0.90%	2.19%	1.49%	1.47	85.79%
9/20/2019	\$25.80	0.16%	-0.48%	0.86%	0.26%	-0.10%	1.50%	-0.07	5.51%
9/23/2019	\$26.18	1.47%	-0.01%	-0.43%	-0.65%	2.13%	1.50%	1.42	84.38%
9/24/2019	\$25.38	-3.06%	-0.83%	-1.28%	-2.81%	-0.24%	1.50%	-0.16	12.77%
9/25/2019	\$25.52	0.55%	0.62%	-1.59%	-1.21%	1.76%	1.50%	1.17	75.84%
9/26/2019	\$25.27	-0.98%	-0.24%	-2.02%	-2.91%	1.93%	1.50%	1.28	79.97%
9/27/2019	\$25.70	1.70%	-0.52%	0.79%	0.09%	1.61%	1.51%	1.07	71.33%
9/30/2019	\$25.60	-0.39%	0.51%	-1.29%	-0.98%	0.59%	1.51%	0.39	30.21%
10/1/2019	\$24.27	-5.20%	-1.22%	-1.68%	-3.86%	-1.34%	1.51%	-0.89	62.44%
10/2/2019	\$23.20	-4.41%	-1.79%	-0.40%	-3.14%	-1.27%	1.51%	-0.84	59.89%
10/3/2019	\$23.37	0.73%	0.82%	1.28%	2.55%	-1.82%	1.51%	-1.20	77.01%
10/4/2019	\$22.16	-5.18%	1.42%	-1.73%	-0.26%	-4.92%	1.51%	-3.25	99.87%
10/7/2019	\$21.40	-3.43%	-0.45%	0.23%	-0.53%	-2.90%	1.55%	-1.87	93.77%
10/8/2019	\$20.25	-5.37%	-1.55%	0.39%	-1.87%	-3.50%	1.55%	-2.25	97.49%
10/9/2019	\$20.53	1.38%	0.94%	0.20%	1.34%	0.04%	1.57%	0.03	2.08%
10/10/2019	\$20.43	-0.49%	0.64%	0.86%	1.73%	-2.22%	1.57%	-1.41	84.08%
10/11/2019	\$21.42	4.85%	1.10%	0.10%	1.41%	3.43%	1.58%	2.18	96.97%
10/14/2019	\$21.94	2.43%	-0.14%	-0.36%	-0.84%	3.27%	1.59%	2.05	95.88%
10/15/2019	\$22.18	1.09%	1.00%	-0.76%	0.26%	0.84%	1.60%	0.52	39.67%
10/16/2019	\$21.76	-1.89%	-0.19%	-1.18%	-1.91%	0.02%	1.60%	0.01	0.77%
10/17/2019	\$22.12	1.65%	0.28%	-1.10%	-1.14%	2.79%	1.60%	1.74	91.72%
10/18/2019	\$22.44	1.45%	-0.39%	-1.35%	-2.37%	3.82%	1.61%	2.37	98.13%
10/21/2019	\$22.77	2.58%	0.69%	2.19%	3.45%	-0.86%	1.63%	-0.53	40.34%
10/22/2019	\$22.95	0.79%	-0.35%	2.87%	2.79%	-2.00%	1.63%	-1.23	77.84%
10/23/2019	\$23.54	2.57%	0.29%	0.62%	1.00%	1.57%	1.63%	0.96	66.32%
10/24/2019	\$23.23	-1.32%	0.19%	-0.26%	-0.17%	-1.14%	1.64%	-0.70	51.47%
10/25/2019	\$22.07	-4.99%	0.41%	0.09%	0.55%	-5.55%	1.64%	-3.39	99.92%
10/28/2019	\$21.73	-1.54%	0.56%	-2.23%	-2.02%	0.48%	1.64%	0.29	22.81%
10/29/2019	\$22.05	1.47%	-0.08%	1.98%	2.12%	-0.65%	1.64%	-0.40	30.76%
10/30/2019	\$21.36	-3.13%	0.33%	-3.77%	-4.18%	1.05%	1.64%	0.64	47.76%
10/31/2019	\$21.66	1.40%	-0.30%	0.82%	0.42%	0.98%	1.64%	0.60	44.98%
11/1/2019	\$23.81	9.93%	0.98%	2.13%	3.77%	6.15%	1.64%	3.75	99.98%
11/4/2019	\$24.52	2.98%	0.37%	2.87%	3.94%	-0.96%	1.68%	-0.57	42.91%
11/5/2019	\$23.96	-2.28%	-0.12%	0.77%	0.67%	-2.96%	1.68%	-1.76	92.02%
11/6/2019	\$23.62	-1.42%	0.08%	-2.94%	-3.57%	2.15%	1.69%	1.27	79.55%
11/7/2019	\$24.08	1.95%	0.32%	2.24%	3.02%	-1.08%	1.69%	-0.64	47.42%

Exhibit 11B**Apache Corporation****Actual vs. Predicted Returns**

Date	Closing Price	Actual Return	Market Return	Industry Residual	Predicted Return	Company-Specific Return	Standard Error	t-Stat	Confidence Level
11/8/2019	\$24.43	1.45%	0.27%	-0.18%	0.08%	1.38%	1.69%	0.81	58.31%
11/11/2019	\$23.85	-2.37%	-0.20%	-0.33%	-0.79%	-1.59%	1.69%	-0.94	65.12%
11/12/2019	\$23.80	-0.21%	0.16%	-0.57%	-0.54%	0.34%	1.69%	0.20	15.71%
11/13/2019	\$23.30	-2.10%	0.07%	-1.41%	-1.67%	-0.43%	1.69%	-0.25	20.02%
11/14/2019	\$23.43	0.56%	0.11%	-0.48%	-0.52%	1.08%	1.69%	0.64	47.62%
11/15/2019	\$23.91	2.05%	0.79%	0.50%	1.62%	0.42%	1.68%	0.25	19.92%
11/18/2019	\$22.98	-3.89%	0.05%	-2.45%	-2.96%	-0.93%	1.69%	-0.55	41.81%
11/19/2019	\$22.37	-2.65%	-0.05%	-0.80%	-1.18%	-1.47%	1.68%	-0.88	61.80%
11/20/2019	\$22.87	2.23%	-0.36%	2.82%	2.69%	-0.45%	1.68%	-0.27	21.32%
11/21/2019	\$23.22	1.53%	-0.15%	1.49%	1.42%	0.11%	1.68%	0.06	5.05%
11/22/2019	\$23.41	0.82%	0.22%	-0.57%	-0.51%	1.32%	1.68%	0.79	56.97%
11/25/2019	\$23.55	0.60%	0.76%	0.38%	1.43%	-0.83%	1.68%	-0.50	37.93%
11/26/2019	\$22.89	-2.80%	0.22%	-2.21%	-2.46%	-0.34%	1.67%	-0.20	15.98%
11/27/2019	\$23.22	1.44%	0.43%	0.37%	0.93%	0.51%	1.67%	0.31	23.97%
11/29/2019	\$22.28	-4.05%	-0.38%	-0.92%	-1.79%	-2.26%	1.68%	-1.35	82.13%
12/2/2019	\$19.54	-12.30%	-0.86%	1.45%	0.32%	-12.62%	1.69%	-7.49	100.00%
12/3/2019	\$18.38	-5.94%	-0.66%	-1.56%	-3.04%	-2.90%	1.87%	-1.55	87.85%
12/4/2019	\$18.70	1.74%	0.64%	3.11%	4.47%	-2.73%	1.88%	-1.46	85.36%
12/5/2019	\$18.58	-0.64%	0.18%	-1.39%	-1.56%	0.92%	1.88%	0.49	37.34%
12/6/2019	\$19.99	7.59%	0.92%	2.75%	4.43%	3.16%	1.88%	1.68	90.56%
12/9/2019	\$20.63	3.20%	-0.31%	0.53%	-0.04%	3.25%	1.89%	1.72	91.32%
12/10/2019	\$20.93	1.45%	-0.11%	0.42%	0.16%	1.29%	1.90%	0.68	50.37%
12/11/2019	\$21.28	1.67%	0.29%	-0.16%	0.14%	1.54%	1.89%	0.81	58.36%
12/12/2019	\$22.04	3.57%	0.87%	1.36%	2.88%	0.69%	1.88%	0.37	28.60%
12/13/2019	\$21.35	-3.13%	0.02%	-0.84%	-1.09%	-2.04%	1.88%	-1.08	72.05%
12/16/2019	\$22.07	3.37%	0.72%	1.20%	2.44%	0.93%	1.89%	0.49	37.77%
12/17/2019	\$22.47	1.81%	0.03%	0.72%	0.79%	1.02%	1.89%	0.54	41.25%
12/18/2019	\$22.74	1.20%	-0.03%	0.88%	0.86%	0.34%	1.87%	0.18	14.44%
12/19/2019	\$22.71	-0.13%	0.45%	-0.23%	0.34%	-0.48%	1.87%	-0.25	20.03%
12/20/2019	\$22.62	-0.40%	0.50%	0.51%	1.30%	-1.70%	1.87%	-0.91	63.52%
12/23/2019	\$26.53	17.29%	0.09%	1.73%	2.08%	15.20%	1.88%	8.11	100.00%
12/24/2019	\$26.17	-1.36%	-0.01%	0.48%	0.53%	-1.89%	2.11%	-0.89	62.73%
12/26/2019	\$26.27	0.38%	0.52%	-0.36%	0.34%	0.04%	2.11%	0.02	1.46%
12/27/2019	\$26.12	-0.57%	0.00%	-0.57%	-0.77%	0.20%	2.09%	0.10	7.60%
12/30/2019	\$25.50	-2.37%	-0.56%	0.24%	-0.70%	-1.67%	2.10%	-0.80	57.39%
12/31/2019	\$25.59	0.35%	0.30%	0.88%	1.57%	-1.21%	2.09%	-0.58	43.72%
1/2/2020	\$25.36	-0.90%	0.85%	-0.81%	0.39%	-1.29%	2.09%	-0.62	46.15%
1/3/2020	\$25.69	1.30%	-0.70%	1.99%	1.25%	0.05%	2.09%	0.03	2.02%
1/6/2020	\$25.64	-0.19%	0.35%	1.61%	2.56%	-2.76%	2.10%	-1.32	81.03%
1/7/2020	\$32.51	26.79%	-0.27%	0.59%	0.15%	26.64%	2.10%	12.69	100.00%
1/8/2020	\$32.73	0.68%	0.49%	-3.27%	-3.27%	3.95%	2.71%	1.46	85.35%
1/9/2020	\$32.60	-0.40%	0.69%	0.13%	1.39%	-1.78%	2.72%	-0.66	48.70%
1/10/2020	\$32.38	-0.67%	-0.29%	-1.03%	-1.76%	1.08%	2.72%	0.40	30.83%
1/13/2020	\$32.01	-1.14%	0.70%	-1.42%	-0.57%	-0.58%	2.72%	-0.21	16.78%
1/14/2020	\$33.59	4.94%	-0.14%	0.98%	0.98%	3.95%	2.72%	1.45	85.30%
1/15/2020	\$33.54	-0.15%	0.19%	-0.40%	-0.17%	0.02%	2.73%	0.01	0.53%
1/16/2020	\$33.10	-1.31%	0.84%	-0.43%	0.92%	-2.23%	2.73%	-0.82	58.54%

Exhibit 11B**Apache Corporation****Actual vs. Predicted Returns**

Date	Closing Price	Actual Return	Market Return	Industry Residual	Predicted Return	Company-Specific Return	Standard Error	t-Stat	Confidence Level
1/17/2020	\$32.67	-1.30%	0.39%	-1.06%	-0.65%	-0.65%	2.73%	-0.24	18.69%
1/21/2020	\$31.74	-2.08%	-0.26%	-1.52%	-2.35%	0.27%	2.74%	0.10	7.86%
1/22/2020	\$30.87	-2.74%	0.03%	-1.80%	-2.21%	-0.53%	2.73%	-0.20	15.48%
1/23/2020	\$30.27	-1.94%	0.12%	-1.02%	-1.10%	-0.84%	2.73%	-0.31	24.26%
1/24/2020	\$29.98	-0.96%	-0.90%	-0.42%	-2.09%	1.14%	2.73%	0.42	32.27%
1/27/2020	\$28.85	-3.77%	-1.57%	-1.45%	-4.54%	0.77%	2.73%	0.28	22.33%
1/28/2020	\$28.73	-0.42%	1.01%	-0.35%	1.26%	-1.68%	2.72%	-0.62	46.23%
1/29/2020	\$28.09	-2.23%	-0.08%	-1.97%	-2.68%	0.45%	2.72%	0.17	13.24%
1/30/2020	\$28.18	0.32%	0.33%	0.06%	0.58%	-0.26%	2.72%	-0.10	7.64%
1/31/2020	\$27.44	-2.63%	-1.76%	-0.58%	-3.88%	1.25%	2.72%	0.46	35.43%
2/3/2020	\$27.56	0.44%	0.73%	-1.89%	-1.14%	1.58%	2.72%	0.58	43.89%
2/4/2020	\$28.14	2.10%	1.50%	-1.74%	0.41%	1.69%	2.71%	0.62	46.68%
2/5/2020	\$28.90	2.70%	1.13%	3.39%	6.14%	-3.44%	2.71%	-1.27	79.40%
2/6/2020	\$28.94	0.14%	0.35%	-1.81%	-1.64%	1.78%	2.72%	0.65	48.66%
2/7/2020	\$28.11	-2.87%	-0.52%	-0.84%	-1.97%	-0.90%	2.72%	-0.33	25.75%
2/10/2020	\$27.97	-0.50%	0.75%	-1.97%	-1.12%	0.62%	2.73%	0.23	18.05%
2/11/2020	\$28.17	0.71%	0.17%	1.05%	1.55%	-0.84%	2.72%	-0.31	24.14%
2/12/2020	\$28.48	1.10%	0.65%	0.75%	2.02%	-0.91%	2.72%	-0.34	26.26%
2/13/2020	\$27.92	-1.97%	-0.13%	0.25%	0.04%	-2.01%	2.72%	-0.74	53.75%
2/14/2020	\$27.36	-2.01%	0.20%	-0.95%	-0.86%	-1.15%	2.73%	-0.42	32.66%
2/18/2020	\$28.11	2.74%	-0.29%	-0.31%	-0.94%	3.68%	2.73%	1.35	82.11%
2/19/2020	\$28.47	1.28%	0.49%	2.75%	4.13%	-2.85%	2.74%	-1.04	70.07%
2/20/2020	\$28.58	0.39%	-0.38%	-0.03%	-0.74%	1.12%	2.74%	0.41	31.79%
2/21/2020	\$28.40	-0.63%	-1.05%	-0.17%	-2.06%	1.43%	2.74%	0.52	39.85%
2/24/2020	\$26.75	-5.81%	-3.34%	-0.83%	-6.76%	0.95%	2.75%	0.35	27.17%
2/25/2020	\$25.50	-4.67%	-3.03%	-0.69%	-6.07%	1.39%	2.74%	0.51	38.86%
2/26/2020	\$24.43	-4.20%	-0.38%	-3.90%	-5.37%	1.18%	2.74%	0.43	33.18%
2/27/2020	\$25.07	2.62%	-4.40%	0.47%	-7.01%	9.63%	2.74%	3.51	99.95%
2/28/2020	\$24.92	-0.60%	-0.81%	4.66%	4.13%	-4.72%	2.75%	-1.72	91.31%
3/2/2020	\$25.52	2.41%	4.61%	-4.84%	2.18%	0.22%	2.76%	0.08	6.48%
3/3/2020	\$24.99	-2.08%	-2.81%	1.72%	-2.48%	0.40%	2.76%	0.14	11.50%
3/4/2020	\$25.13	0.56%	4.23%	-2.88%	3.07%	-2.51%	2.75%	-0.91	63.71%
3/5/2020	\$24.34	-3.14%	-3.37%	0.09%	-4.73%	1.58%	2.76%	0.57	43.35%
3/6/2020	\$20.70	-14.95%	-1.70%	-6.72%	-10.32%	-4.63%	2.76%	-1.68	90.60%
3/9/2020	\$9.55	-53.86%	-7.59%	-20.51%	-36.47%	-17.40%	2.78%	-6.27	100.00%
3/10/2020	\$10.79	12.98%	4.94%	0.25%	13.18%	-0.20%	2.89%	-0.07	5.43%
3/11/2020	\$8.25	-23.54%	-4.88%	0.50%	-12.55%	-10.99%	2.88%	-3.81	99.98%
3/12/2020	\$7.76	-5.94%	-9.49%	3.87%	-21.33%	15.39%	2.96%	5.20	100.00%
3/13/2020	\$8.07	3.99%	9.32%	-3.15%	16.59%	-12.59%	3.08%	-4.08	99.99%
3/16/2020	\$5.46	-32.34%	-11.98%	4.70%	-16.99%	-15.35%	3.17%	-4.84	100.00%
3/17/2020	\$4.46	-18.32%	6.00%	-10.97%	-5.63%	-12.69%	3.17%	-4.00	99.99%
3/18/2020	\$4.44	-0.45%	-5.18%	0.23%	-10.40%	9.96%	3.17%	3.14	99.81%
3/19/2020	\$4.95	11.49%	0.48%	9.00%	14.79%	-3.30%	3.17%	-1.04	70.10%
3/20/2020	\$4.83	-2.42%	-4.32%	8.33%	4.11%	-6.54%	3.17%	-2.06	95.97%
3/23/2020	\$4.31	-10.77%	-2.93%	0.72%	-5.10%	-5.66%	3.17%	-1.79	92.47%
3/24/2020	\$5.58	29.47%	9.39%	5.23%	26.73%	2.74%	3.17%	0.86	61.20%
3/25/2020	\$5.89	5.55%	1.15%	-1.42%	-0.28%	5.83%	3.17%	1.84	93.31%

Exhibit 11B**Apache Corporation****Actual vs. Predicted Returns**

Date	Closing Price	Actual Return	Market Return	Industry Residual	Predicted Return	Company-Specific Return	Standard Error	t-Stat	Confidence Level
3/26/2020	\$5.76	-2.21%	6.25%	-6.52%	1.90%	-4.11%	3.17%	-1.30	80.36%
3/27/2020	\$4.86	-15.63%	-3.37%	-2.86%	-11.63%	-4.00%	3.17%	-1.26	79.16%
3/30/2020	\$4.11	-15.43%	3.37%	-6.38%	-3.66%	-11.77%	3.17%	-3.71	99.97%
3/31/2020	\$4.18	1.70%	-1.59%	7.17%	7.75%	-6.04%	3.17%	-1.91	94.21%
4/1/2020	\$4.02	-3.83%	-4.41%	3.44%	-3.80%	-0.03%	3.17%	-0.01	0.75%
4/2/2020	\$4.69	16.67%	2.30%	8.17%	17.14%	-0.47%	3.17%	-0.15	11.89%
4/3/2020	\$5.38	14.71%	-1.50%	2.96%	1.30%	13.41%	3.17%	4.23	100.00%
4/6/2020	\$5.87	9.11%	7.03%	-9.51%	-1.25%	10.36%	3.17%	3.27	99.88%
4/7/2020	\$6.52	11.07%	-0.16%	2.13%	2.67%	8.40%	3.17%	2.65	99.14%
4/8/2020	\$7.58	16.26%	3.43%	3.07%	11.36%	4.90%	3.17%	1.55	87.65%
4/9/2020	\$8.20	8.18%	1.46%	-3.45%	-2.87%	11.05%	3.17%	3.49	99.94%
4/13/2020	\$8.38	2.20%	-1.01%	0.74%	-1.22%	3.42%	3.17%	1.08	71.81%
4/14/2020	\$8.08	-3.58%	3.07%	-6.12%	-3.84%	0.26%	3.17%	0.08	6.63%
4/15/2020	\$7.94	-1.73%	-2.20%	-0.88%	-6.16%	4.42%	3.17%	1.40	83.59%
4/16/2020	\$7.49	-5.67%	0.58%	-6.59%	-9.59%	3.92%	3.17%	1.24	78.28%
4/17/2020	\$8.49	13.35%	2.68%	8.74%	18.80%	-5.45%	3.17%	-1.72	91.30%
4/20/2020	\$8.48	-0.12%	-1.79%	0.64%	-2.93%	2.81%	3.17%	0.89	62.43%
4/21/2020	\$8.57	1.36%	-3.06%	3.49%	-1.01%	2.36%	3.17%	0.75	54.36%
4/22/2020	\$9.42	9.92%	2.30%	3.03%	9.02%	0.90%	3.17%	0.28	22.25%
4/23/2020	\$10.50	11.46%	-0.05%	3.20%	4.59%	6.87%	3.17%	2.17	96.89%
4/24/2020	\$10.69	1.81%	1.39%	-2.44%	-1.41%	3.22%	3.17%	1.01	68.86%
4/27/2020	\$10.50	-1.78%	1.47%	0.49%	3.37%	-5.15%	3.17%	-1.62	89.43%
4/28/2020	\$10.67	1.62%	-0.52%	3.00%	3.32%	-1.70%	3.17%	-0.54	40.87%
4/29/2020	\$13.05	22.31%	2.66%	5.65%	13.89%	8.42%	3.17%	2.66	99.16%
4/30/2020	\$13.08	0.23%	-0.92%	1.18%	-0.34%	0.57%	3.17%	0.18	14.27%
5/1/2020	\$11.28	-13.76%	-2.79%	-2.32%	-9.63%	-4.13%	3.17%	-1.30	80.66%
5/4/2020	\$12.06	6.91%	0.43%	2.79%	4.89%	2.03%	3.17%	0.64	47.71%
5/5/2020	\$11.78	-2.32%	0.90%	-1.62%	-1.10%	-1.23%	3.17%	-0.39	30.08%
5/6/2020	\$11.61	-1.44%	-0.69%	0.20%	-1.42%	-0.02%	3.17%	-0.01	0.48%
5/7/2020	\$11.88	2.33%	1.19%	2.28%	5.61%	-3.28%	3.17%	-1.04	69.87%
5/8/2020	\$12.45	4.80%	1.71%	1.80%	5.91%	-1.11%	3.17%	-0.35	27.31%
5/11/2020	\$12.03	-3.37%	0.02%	-2.89%	-4.88%	1.51%	3.17%	0.48	36.51%
5/12/2020	\$11.79	-1.99%	-2.04%	2.02%	-1.26%	-0.73%	3.17%	-0.23	18.30%
5/13/2020	\$10.73	-8.99%	-1.74%	-1.45%	-6.14%	-2.85%	3.17%	-0.90	63.10%
5/14/2020	\$10.36	-3.45%	1.17%	-1.13%	0.21%	-3.66%	3.17%	-1.15	75.04%
5/15/2020	\$10.61	2.41%	0.40%	0.79%	1.70%	0.72%	3.17%	0.23	17.89%
5/18/2020	\$11.92	12.35%	3.16%	4.30%	12.76%	-0.41%	3.17%	-0.13	10.33%
5/19/2020	\$11.36	-4.70%	-1.04%	-1.67%	-5.09%	0.39%	3.17%	0.12	9.72%
5/20/2020	\$11.95	5.19%	1.68%	0.96%	4.54%	0.66%	3.17%	0.21	16.42%
5/21/2020	\$12.05	0.84%	-0.77%	0.73%	-0.76%	1.59%	3.17%	0.50	38.46%
5/22/2020	\$12.17	1.00%	0.25%	-0.67%	-0.91%	1.91%	3.17%	0.60	45.28%
5/26/2020	\$12.71	4.44%	1.23%	-0.70%	1.00%	3.43%	3.17%	1.08	72.01%
5/27/2020	\$12.58	-1.02%	1.48%	-0.50%	1.83%	-2.86%	3.17%	-0.90	63.17%
5/28/2020	\$11.87	-5.64%	-0.20%	-2.52%	-4.73%	-0.92%	3.17%	-0.29	22.77%
5/29/2020	\$10.79	-9.10%	0.50%	-2.37%	-3.10%	-5.99%	3.17%	-1.89	94.02%
6/1/2020	\$11.73	8.71%	0.38%	2.40%	4.19%	4.52%	3.17%	1.43	84.50%
6/2/2020	\$12.23	4.26%	0.82%	2.77%	5.67%	-1.40%	3.17%	-0.44	34.13%

Exhibit 11B**Apache Corporation****Actual vs. Predicted Returns**

Date	Closing Price	Actual Return	Market Return	Industry Residual	Predicted Return	Company-Specific Return	Standard Error	t-Stat	Confidence Level
6/3/2020	\$12.53	2.45%	1.38%	0.60%	3.34%	-0.89%	3.17%	-0.28	22.04%
6/4/2020	\$13.00	3.75%	-0.32%	0.87%	0.38%	3.37%	3.17%	1.06	71.08%
6/5/2020	\$16.07	23.61%	2.62%	4.75%	12.38%	11.23%	3.17%	3.54	99.95%
6/8/2020	\$17.73	10.33%	1.21%	4.13%	8.56%	1.77%	3.17%	0.56	42.19%
6/9/2020	\$16.53	-6.77%	-0.77%	-3.87%	-8.01%	1.24%	3.17%	0.39	30.51%
6/10/2020	\$14.83	-10.28%	-0.53%	-5.21%	-9.64%	-0.65%	3.17%	-0.20	16.15%
6/11/2020	\$12.79	-13.76%	-5.88%	1.35%	-10.04%	-3.72%	3.17%	-1.17	75.84%

Exhibit 11C**Apache Corporation****Companies Used in the Industry Index**

Source: Bloomberg; Refinitiv Eikon

Number	Company Name	Bloomberg Symbol	Join Date	Leave Date
1	Anadarko Petroleum Corp	APC US Equity	12/3/2001	8/9/2019
2	Chesapeake Energy Corp	CHKAQ US Equity	3/3/2006	3/19/2018
3	Cimarex Energy Co	XEC US Equity	6/23/2014	3/3/2020
4	Concho Resources Inc	CXO US Equity	2/22/2016	1/21/2021
5	ConocoPhillips	COP US Equity	5/1/2012	
6	Coterra Energy Inc	CTRA US Equity	6/23/2008	
7	Denbury Inc	DNRCQ US Equity	4/2/2009	3/23/2015
8	Devon Energy Corp	DVN US Equity	12/3/2001	
9	Diamondback Energy Inc	FANG US Equity	12/3/2018	
10	EOG Resources Inc	EOG US Equity	12/3/2001	
11	EQT Corp	EQT US Equity	9/1/2010	11/13/2018
12	Hess Corp	HES US Equity	4/1/2015	
13	Marathon Oil Corp	MRO US Equity	7/1/2011	
14	Murphy Oil Corp	MUR US Equity	8/15/2005	7/26/2017
15	Noble Energy Inc	NBL US Equity	10/8/2007	10/12/2020
16	Ovintiv Exploration Inc	NFX US Equity	12/20/2010	2/15/2019
17	Pioneer Natural Resources Co	PXD US Equity	9/24/2008	
18	QEP Resources Inc	QEP US Equity	7/1/2010	7/1/2015
19	Range Resources Corp	RRC US Equity	12/21/2007	6/18/2018
20	Southwestern Energy Co	SWN US Equity	6/6/2008	4/4/2017

Exhibit 12**Summary of Apache's Stock Price Reaction on Event Dates**

Event Date	Event	Impact Date	Actual Return	Residual Return	Confidence Level
11/3/2016	Third-Quarter 2016 Earnings Results & Conference Call	11/3/2016	-6.63%	-7.73%	100.0%
2/23/2017	Fourth-Quarter/Full-Year 2016 Earnings Results & Conference Call	2/23/2017	-3.51%	-3.63%	99.4%
5/4/2017	First-Quarter 2017 Earnings Results & Conference Call	5/4/2017	-1.84%	0.54%	33.7%
8/3/2017	Second-Quarter 2017 Earnings Results & Conference Call	8/3/2017	-8.04%	-4.92%	100.0%
11/2/2017	Third-Quarter 2017 Earnings Results & Conference Call	11/2/2017	-1.30%	-0.89%	58.2%
2/22/2018	Fourth-Quarter/Full-Year 2017 Earnings Results & Conference Call	2/22/2018	-6.32%	-8.08%	100.0%
5/2/2018 & 5/3/2018	First-Quarter 2018 Earnings Results & Conference Call	5/3/2018	-6.14%	-5.33%	100.0%
8/1/2018 & 8/2/2018	Second-Quarter 2018 Earnings Results & Conference Call	8/2/2018	-1.18%	-1.39%	73.8%
10/31/2018 & 11/1/2018	Third-Quarter 2018 Earnings Results & Conference Call	11/1/2018	-3.81%	-5.31%	100.0%
2/27/2019 & 2/28/2019	Fourth-Quarter/Full-Year 2018 Earnings Results & Conference Call	2/28/2019	-1.13%	0.30%	18.0%
5/1/2019 & 5/2/2019	First-Quarter 2019 Earnings Results & Conference Call	5/2/2019	-6.09%	-3.45%	98.7%

Exhibit 12

Event Date	Event	Impact Date	Actual Return	Residual Return	Confidence Level
7/31/2019 & 8/1/2019	Second-Quarter 2019 Earnings Results & Conference Call	8/1/2019	-1.23%	3.55%	98.9%
10/30/2019 & 10/31/2019	Third-Quarter 2019 Earnings Results & Conference Call	10/31/2019	1.40%	0.98%	45.0%
2/26/2020 & 2/27/2020	Fourth-Quarter/Full-Year 2019 Earnings Results & Conference Call	2/27/2020	2.62%	9.63%	99.9%

Exhibit 12

Impact Date	Event
11/3/2016	<p>Before market open on Thursday, November 3, 2016, the Company announced its third-quarter 2017 financial results. For the quarter, Apache reported production of 520 thousand barrels of oil equivalent per day (“mboe/d”), oil and gas production revenues (“revenue”) of \$1.44 billion, an earnings per share (“EPS”) loss of -\$1.60, which “include[s] a number of items outside of core earnings that are typically excluded by the investment community in their published earnings estimates,” and an adjusted EPS loss of -\$0.03.¹</p> <p>The consensus estimates of the Company’s quarterly total production and adjusted EPS loss were 508.612 mboe/d and -\$0.14, respectively.²</p> <p>John J. Christmann IV, Apache’s chief executive officer and president (“Christmann”), commented on the Company’s quarter:³</p> <p style="padding-left: 40px;">Our exploration success and financial results in the third quarter demonstrate the transformation that is taking place at Apache. During the quarter, Apache announced the discovery of an immense unconventional play in the Delaware Basin, Alpine High. Apache’s extensive position in the play, which now totals 320,000 net acres, is an excellent example of our strategic focus on organic growth and strong technical capabilities. Our goal over time will be to ensure that we develop Alpine High in a methodical, efficient and environmentally responsible way for the benefit of our shareholders and other stakeholders</p> <p style="padding-left: 40px;">Our deliberate focus on strategic testing during the downturn not only yielded excellent results with our Alpine High discovery, but also significantly improved our results in our Midland and Delaware Basin focus areas. Our economic drilling inventory in the Permian Basin is more extensive today than at any time in the company’s history, and we expect it will continue to grow as we further delineate our vast acreage position in the basin</p>

¹ Apache News Release, “Apache Corporation Announces Third-Quarter 2016 Financial and Operational Results,” November 3, 2016. *See also PR Newswire*, “Apache Corporation Releases Third-Quarter 2016 Financial And Operational Results,” November 3, 2016, 8:00 AM.

² *Bloomberg First Word*, “Apache Sees Ending 2016 at High End N.A. Onshore Production View,” November 3, 2016, 8:12 AM.

³ Apache News Release, “Apache Corporation Announces Third-Quarter 2016 Financial and Operational Results,” November 3, 2016.

Exhibit 12

Impact Date	Event
	<p>We believe long-term shareholder value is created by living within our means, protecting our strong financial position and organically building high-quality drilling inventory. Our recent discovery at Alpine High is an example of the long-term value we seek to create and is a testament to our strategy and focus during the downturn. We look forward to discussing Alpine High results in more detail over the coming months as our delineation program progresses</p> <p>In addition, Apache provided a “2016 outlook and plan update”:⁴</p> <p>Apache’s 2016 capital expenditures are tracking in line with its guidance of \$2 billion. Following strong production and drilling results year-to-date, the company expects to end 2016 at the high end of North American Onshore production guidance of 268,000 to 278,000 Boe per day and at the midpoint of International and Offshore production guidance of 170,000 to 180,000 Boe per day. In the fourth quarter, the company plans to increase development drilling activity in the Midland Basin with the addition of three rigs. This will bring the total number of rigs drilling in the Midland Basin to five and will help contribute to the Permian Region’s return to a growth trajectory in the second half of 2017.</p> <p>The Company held a conference call with investment analysts the same day. During the call, Christmann “provide[d] the following high-level summary of [Apache’s] 2017 investment priorities”:⁵</p> <p>Our top priority next year is funding the Alpine High. The budget will likely consist of a four- to six-rig program and a first wave of midstream buildout. The near-term pace of spending on Alpine High will be governed by the timing of infrastructure availability as well as a prudent appraisal and delineation program. Our goal in 2017 is to ensure that investment levels do not outpace our comprehensive understanding of the opportunity or our capacity to get product to</p>

⁴ Apache News Release, “Apache Corporation Announces Third-Quarter 2016 Financial and Operational Results,” November 3, 2016.

⁵ Thomson Reuters, StreetEvents, “APA – Q3 2016 Apache Corp Earnings Call, EVENT DATE/TIME: NOVEMBER 03, 2016 / 6:00PM GMT,” November 3, 2016, 2:00 PM.

Exhibit 12

Impact Date	Event
	<p>market. Our next priority is to increase development activity in our other Permian Basin focus areas. Specifically, we will add three rigs in the Midland Basin before year-end 2016, bringing our total rig count to five. This additional activity, coupled with first gas production from Alpine High, will return the Permian Basin to a strong growth trajectory in the second half of 2017. We will also continue to invest in Egypt and the North Sea at levels designed to sustain production and generate significant free cash flow. And lastly, our other exploration projects and North American development opportunities will compete for the remaining available capital.</p> <p>Bank of America Merrill Lynch wrote that the Company's adjusted EPS beat its estimate and consensus "primarily [on] lower costs," while production was "essentially in line with no major changes in guidance [though] management now expects to achieve the high end of a narrow North American guidance range." The analyst noted that Apache's "[c]ashflow looks in line with consensus in an otherwise uneventful quarter":⁶</p> <p>Adj EPS beat on costs, still early days in the Alpine High Apache's adjusted EPS of (\$0.03) beat consensus of (\$0.14) (BofAML \$(0.13)). At first glance, versus our estimate, the delta is primarily lower costs noting this is the first quarter reported by APA since moving to successful efforts accounting. Production for the quarter averaged 520 Mboe /d, essentially in line with no major changes in guidance: management now expects to achieve the high end of a narrow North American guidance range (268-278 Mboepd) and the midpoint of its international / offshore guidance. Cashflow looks in line with consensus in an otherwise uneventful quarter.</p> <p>Focus on the Alpine High: still early days Given the prior announcement of a new discovery (320k net acres in the 'Alpine High' play), we focus on its latest two Woodford wells - the Redwood 1H and the Blackhawk 1H, with initial rates of 18 MMcfe /d (100% gas) and 8.1 MMcfe / d (65% gas, 17% oil, 18% NGLs). In our view, the results are consistent with prior disclosure confirming the play as predominantly gas; notably the Blackhawk well is lagging the first handful of wells that anchored management's</p>

⁶ Bank of America Merrill Lynch, "Apache Corp, 3Q16 Earnings first look: still early days in the Alpine High," November 3, 2016, 10:28 AM.

Exhibit 12

Impact Date	Event
	<p>disclosure on the potential of the play. In our view it simply too early to draw firm conclusions on the potential impact on APA – not least as allocating incremental capital detracts from our prior assumptions that spending would target previously announced oil plays. Taken together, we believe it is simply too early to make a call on the Alpine High, with infrastructure a key question for development pace.</p> <p>Adding three rigs to the Midland Basin APA announced plans to add three more rigs in the Midland Basin in the fourth quarter. Outside of its Alpine high area in the Permian, the company brought online 13 wells in the Yeso play in the Northwest Shelf where management believes both rates and costs make the play attractive in the current oil environment. It also brought 8 wells in the Delaware including Bone Spring well (4,700 ft lateral) with an initial rate 30 day rate of 942 Boe /d in its Pecos Bend area. While these results are consistent with prior disclosure – however incremental spending appears to skew increasingly to the Alpine High, suggesting a greater skew towards gas in the future production mix.</p> <p>Other international updates In Canada, APA announced Lower a Montney test with an initial rate of 10.6 MMcf /d of natural gas and 2,000 bbl/d of condensate in its Wapiti area in Alberta. While we find the result interesting, we look for greater color from management on the marketing opportunities it sees in this region compared to those in the US. In the North Sea, production declined to 62 Mboepd from 71 Mboepd qoq due to maintenance and third party downtime; and in Egypt, net production averaged approximately 98 Mboe / d, down 3% qoq. We continue to believe spending will have to ramp higher to avoid further reductions in entitlement volumes, which currently reflect prior year elevated spending.</p> <p>Maintain Underperform rating We maintain our Underperform rating on APA given that we believe it is still too early to determine whether or not the Alpine High can fill the company's resource void. Look forward to greater disclosure but remain on the sidelines for now. Conference call at 2 PM ET Dial-in: 888.830.1024; Pin: 137499619 Int'l: 706.643.2651; Pin: 137499619</p>

Exhibit 12

Impact Date	Event
	<p>Bank of America Merrill Lynch, in a later report, added that in a “a quarter essentially in line with consensus, the key topic of discussion was the Alpine High discovery which promises to return APA to growth from 3Q17.” However, the analyst thought it was “[t]oo early to draw conclusions on the Alpine High.” The analyst “lower[ed its] earnings estimate for 2017 to reflect a production mix that shifts towards gas from oil,” but increased its price target for the Company to \$56 from \$54 “[o]n our base case that views a reasonable forward multiple for US E&P growth stocks with a five year forward ~5.5x EV/DACF benchmarked to the wider equity market”:⁷</p> <p>Too early to draw conclusions on the Alpine High In what we characterize as a quarter essentially in line with consensus, the key topic of discussion was the Alpine High discovery which promises to return APA to growth from 3Q17. The challenge is it is simply too early to fully assess the play. Extensive discussions around the challenges of moving to full field development somehow seem premature to us given absence of infrastructure and gas processing capacity, an issue freely acknowledged by management. Still, using management’s assumptions disclosed to date, our analysis suggests Permian production could reasonably grow 15%-20% by 4Q17, but skews production towards dry gas; even with full infrastructure development, the disclosed yield is still ~60% gas and 33% NGLs, which substantially dilutes our prior assumption that incremental cashflow would target more ‘oily’ plays.</p> <p>Preliminary review: APA can grow but the mix skews to gas APA is some way from confirming an infrastructure build out plan. However, if we assume growth can be accommodated unconstrained the bias towards the Alpine High skews Apache’s medium term production mix towards US gas: by our estimates, APA can reasonably deliver growth in oil and gas production of ~5-10% over the next five years – but US gas increases from 12% currently to over 20%. When considering oil leverage as a key tenet of APA’s legacy investment case, the relative outlook that we believe favors oil over gas leaves APA unfavorably positioned versus peers. We lower our earnings estimate for 2017 to reflect a production mix</p>

⁷ Bank of America Merrill Lynch, “Apache Corp, 3Q16 Earnings recap: return to growth from 2Q17, but Alpine High skews mix to US gas,” November 3, 2016, 11:26 PM.

Exhibit 12

Impact Date	Event
	<p>that shifts towards gas from oil. On our base case that views a reasonable forward multiple for US E&P growth stocks with a five year forward ~5.5x EV/DACF benchmarked to the wider equity market, our PO on APA moves up slightly to \$56 – approximately APA’s current share price. Accordingly, we reiterate our rating at Underperform.</p> <p>EPS beats consensus Apache’s adjusted EPS of (\$0.03) beat consensus of (\$0.14) (BofAMLe \$(0.13)) primarily on lower costs. Production averaged 520 Mboe /d, essentially in line with no major changes in guidance: management now expects to achieve the high end of a narrow NA guidance range (268-278 Mboepd) and the midpoint of its international / offshore guidance. Cashflow was in line with consensus in an otherwise uneventful quarter.</p> <p>Barclays “expect[ed] a neutral reaction to Apache Corporation’s 3Q16 earnings release and operational update” as “earnings and EBITDA were higher than [the analyst] expected, driven by strong volumes across the board.” The analyst “did not observe major changes in Apache’s outlook in the Q3 update”:⁸</p> <p>We expect a neutral reaction to Apache Corporation’s 3Q16 earnings release and operational update. Apache’s earnings and EBITDA were higher than we expected, driven by strong volumes across the board. We did not observe major changes in Apache’s outlook in the Q3 update. Apache is on track to spend \$2 billion this year and plans to add three rigs to the Midland Basin in 4Q, which will increase total Midland rig count to five. The company expects the three additional Midland rigs to help drive Permian growth trajectory by the second half of 2017. Apache still expects to meet the upper end of North American onshore 2016 production guidance and the midpoint of its international/offshore full-year forecast. The company also plans to spend within cash flow in 4Q to deliver its targeted \$1.5 billion cash position by year-end with the help of positive working capital contributions and proceeds from non-core asset sales.</p>

⁸ Barclays, “Apache Corp., APA Beats Volume Forecasts in 3Q, Maintains 2016 Capex and Production Outlook,” November 3, 2016, 9:33 AM.

Exhibit 12

Impact Date	Event
	<p>APA previously announced the Alpine High discovery in the Delaware Basin during 3Q. Alpine is considered to be a big find for Apache. APA describes the Alpine as a wet gas reservoir with significant uphole oil potential in the Bone Spring and Wolfcamp formations. The company feels that the Woodford and the Barnett alone can support a six-rig program for over 20 years and that the play will quickly become self-sustaining.</p> <p>“Clean” EPS of \$(0.03) compared to our \$(0.10) and consensus of \$(0.16). Apache’s adjusted EBITDA of \$896 million came in higher than our \$790 million forecast. The company exceeded total production guidance, reporting NGL and gas volumes that were much higher than expected. Realized oil price came in 1% higher, while NGLs and gas realizations were 6% and 5% lower, respectively. Unit costs were reported above our forecast. G&A and interest were in line with expectations.</p> <p>Adjusted net loss of \$244 million included the following after-tax items: 1) \$139 million in oil and gas property writedowns, 2) \$13 million in valuation allowance and other tax adjustments, 3) \$13 million loss on divested assets, 4) \$5 million in transaction, reorganization and separation costs, and 5) \$1 million in contract termination costs.</p> <p>Barclays, in a later report, added that it “expect[ed] APA to deliver weak returns on new capital compared to peers through 2018.” Barclays “believe[d] APA shares should trade at a larger discount to peers due to higher exposure to low-multiple international/offshore assets.” The analyst decreased its price target for the Company to \$56 from \$61 “largely to reflect a reduction in our 2018 (and mid-cycle) oil price assumption to \$65/bbl”.⁹</p> <p>APA shares outperformed the XOP by about 15% since the Alpine High discovery was announced in early September. APA trades at a 10% discount on mid-cycle debt-adjusted cash flow despite significant (40% of production) low multiple international and offshore assets. We infer that Apache’s US assets trade at a premium cash flow multiple to peers. We remain Equal Weight and are reducing our price target by \$5 to \$56 largely to reflect a reduction in our 2018 (and mid-cycle) oil price assumption to \$65/bbl.</p>

⁹ Barclays, “Apache Corp., No Major Changes to APA’s Outlook,” November 4, 2016, 2:08 PM.

Exhibit 12

Impact Date	Event
	<p>Apache is on track to spend its \$2 billion budget this year and has maintained its 2016 production outlook. The company plans increase the Midland Basin rig count from two to five in 4Q. The additional Midland rigs should help return the Permian to growth by the second half of 2017. APA expects to meet the upper end of North American onshore 2016 production guidance and the midpoint of its international/offshore full-year forecast.</p> <p>We expect APA to deliver weak returns on new capital compared to peers through 2018. Our proxy for returns on new capital - balance sheet adjusted growth or BAPG – suggests APA will deliver growth rates 4-5% below those of peers in 2017-2018.</p> <p>Apache’s priority is to run 4-6 rigs in Alpine High in 2017 and to deliver the first set of midstream build-outs. We estimate APA will spend \$500-1,000 million in Alpine High next year, perhaps 20-25% of a total budget that we forecast will be ~\$3-3.5 billion in 2017 vs. \$2.0 billion this year.</p> <p>We believe APA shares should trade at a larger discount to peers due to higher exposure to low-multiple international/offshore assets. The stock currently trades at just 10% below the group on mid-cycle debt-adjusted cash flow despite producing 40% of its volumes from its international/offshore assets.</p> <p>BMO wrote that the Company’s adjusted EPS, EBITDAX, and production were short of its estimates but above consensus. The analyst noted that the Company’s “2016 [g]uidance [was r]aised, [which i]mplies [c]ontinued [d]eclines in 4Q”:¹⁰</p> <p>Bottom Line: While Apache’s 3Q results didn’t meet our out of consensus estimates, production was above Street, although due to gas and NGLs. EPS and EBITDAX were also above the Street. Of the two new Alpine High wells, one achieved the highest rate to date (although gas),</p>

¹⁰ BMO Capital Markets, “Apache, 3Q Splits the Difference Between Us and Consensus,” November 3, 2016, 9:22 AM.

Exhibit 12

Impact Date	Event
	<p>while the other had an above-average oil cut, but below-average rate, with no update on the Penn Shale (we thought it was a possibility).</p> <p>Key Points 3Q Splits the Difference Between BMO and Consensus. Apache reported 3Q16 EPS of -\$0.03 vs. our/consensus \$0.06/-\$.14. EBITDAX of \$896mm compared to our/consensus \$959/780mm. GAAP production of 520MBoe/d was above consensus 509MBoe/d, but below our 534MBoe/d. Oil was in line with consensus. NAM Onshore of 270MBoe/d was below our 278MBoe/d, while International and Offshore of 168MBoe/d was below our 180MBoe/d. Permian and Central contributed to lower production vs. our model, while Canada was in line. For International, Egypt was in line, but we hadn't modeled planned maintenance for North Sea, which declined 8.3MBoe/d (Apache said North Sea would be up modestly on its 2Q call). Capex of \$493mm was below our/consensus \$564/492mm.</p> <p>2016 Guidance Raised, Implies Continued Declines in 4Q. Apache raised its NAM Onshore guidance to the high end, while International is expected to be at the midpoint. This implies 4Q16 production of 259MBoe/d for NAM (vs. 270MBoe/d in 3Q) and 164MBoe/d for International (vs. 164MBoe/d in 3Q). This ~11MBoe/d pro forma Q/Q production decline was greater than our ~16MBoe/d estimate, but in line with consensus' decline (and Apache was above in 3Q). Permian will return to growth in 2H17. Capex budget for 2016 was unchanged, and Apache noted the addition of three Midland rigs in 4Q, bringing its total to five rigs.</p> <p>Two New Alpine High Wells. Apache released two new Alpine High well results, while increasing its acreage position to 320,000 (vs. 307,000). Both new wells targeted the Woodford, with the over-pressured well (Redwood 1H) achieving a 24 HR IP of 18MMcf/d (highest rate yet, but all gas), while the normally pressured well (Blackhawk 1H) tested at 1,352Boe/d (17% oil). No discussion on the Penn Shale, which we thought was possible, and could add to Apache's resource potential. See our report "High on the Alpine."</p>

Exhibit 12

Impact Date	Event
	<p>Cowen wrote that “APA reported better than expected Q3 results with a production beat of 520 Mboe/ d coming from higher than expected gas and NGL production.” The analyst added that the Company’s “2016 guidance [was] maintained,” “APA expects to end 2016 at the high end of North American Onshore production guidance,” and “FY16 capex is tracking in-line with the company’s previous guidance of \$2B.” Cowen also “like[d] that APA is adding rigs to the Midland”:¹¹</p> <p>Slightly Positive. Q3 production beat with 2016 guidance maintained. APA is increasing rig count to stem production declines in the Permian which should start to grow 2H17. We like that rigs are being added to the Midland as this is more economic than Alpine High in our view. We expect more detail on today’s call about plans for 2017 and beyond.</p> <p>Stock Thoughts APA reported better than expected Q3 results with a production beat of 520 Mboe/ d coming from higher than expected gas and NGL production. The company plans to bring Midland Basin rig count to 5 by year end to stem production declines in the Permian. We like that APA is adding rigs to the Midland, which we view as more economic than Alpine High. We expect more details on APA’s plans beyond 2016 during today’s call.</p> <p>Results from the Quarter APA expects to end 2016 at the high end of North American Onshore production guidance of 268 - 278 Mboe/d and at the midpoint of International and Offshore production guidance of 170 - 180 Mboe/d.</p> <p>FY16 capex is tracking in-line with the company’s previous guidance of \$2B.</p> <p>In Q4, APA plans to increase development drilling activity in the Midland Basin with the addition of 3 rigs, bringing total Midland rig count to 5 and helping the Permian’s return to a growth trajectory in 2H17.</p>

¹¹ Cowen and Company, “Apache Corporation, Q3 Earnings at a Glance,” November 3, 2016.

Exhibit 12

Impact Date	Event
	<p>During Q3, APA placed on production 35 gross operated wells, mostly in the Permian Basin.</p> <p>In the Delaware Basin, the company placed 5 gross operated wells on production at Alpine High and 8 gross operated wells on production elsewhere.</p> <p>In the Midland Basin, Northwest Shelf and Central Basin Platform, 15 gross operated wells were placed on production including 13 wells in the Yeso play.</p> <p>A Lower Montney well in APA's Wapiti focus area tested at an initial rate of ~11 MMcf/d of natural gas and 2 Mb/d of condensate with an estimated total D&C cost of \$6.2MM.</p> <p>North Sea Q3 production of 62 Mb/d was lower vs. Q2 due to maintenance and third-party facility downtime. The company made a discovery in two separate fault blocks at the recently drilled Storr prospect.</p> <p>Credit Suisse increased its price target for the Company to \$72 from \$64 as "[t]he increase in rig count in the Midland and the higher potential volumes from the Alpine High wet gas play support an increase in TP." The analyst added that its "EPS estimate for 2018 is increased by \$0.22 with higher production forecast and 2017 is lowered slightly with change to the timing of gas sales":¹²</p> <p>Bottom Line: APA CEO spoke today of gas production from the Alpine High measured in the bcfd's not the hundreds of millions of cubic feet per day. There would be associated liquids. Gas sales will start later in 2017 and could grow quickly. APA believe the Alpine High wet gas play will become free cashflow positive faster than the market suspects. APA also announced an additional 3 rigs in the oily Midland, with wells tracking above 1.2mboe, and further rigs to come in 2017. APA is still being relatively conservative with capex in 2017 but as Oil Rebalances higher, there is room to expand activity and drive volumes higher (a similar message from other shale operators).</p>

¹² Credit Suisse, "Apache Corp, Wet Gas Marcellus in Texas Seems Larger Than Consensus, Accelerating Oily Midland," November 3, 2016.

Exhibit 12

Impact Date	Event
	<p>Raising Target Price by \$8/sh: In our report from last week, we envisaged around 0.5bcfd of Alpine High production down the road. The increase in rig count in the Midland and the higher potential volumes from the Alpine High wet gas play support an increase in TP. It is important to note we have zero value for the oily Alpine High Bone Spring or Wolfcamp intervals. The bear thesis that drove trading today was the fast decline in the initial un-optimized Bone Spring short lateral. In other plays, operators have been able to improve well performance over time. With significant acreage and vertical thickness, there should be further value optionality. EPS estimate for 2018 is increased by \$0.22 with higher production forecast and 2017 is lowered slightly with change to the timing of gas sales.</p> <p>Deutsche Bank wrote that the Company's "largely in line results (slight miss on oil vols offset by lower production tax) [] underwhelm[ed], particularly given recent performance" and "with limited incremental detail [about Alpine High] on the quarter." The analyst thought the Company's "[r]amping activity in the Permian (Midland increasing from 2 to 5 rigs by YE) should help drive a inflection in volumes in 2017," but Deutsche Bank "still s[aw] greater value elsewhere":¹³</p> <p>Results a Mixed Bag (CFO in-line but Permian oil vols light) APA's recent Alpine High discovery has become the primary point of focus, for both investors and as a driver of long-term growth, but with limited incremental detail on the quarter (two wells in line with prior results), we expect noisy, and largely in line results (slight miss on oil vols offset by lower production tax) to underwhelm, particularly given recent performance. Ramping activity in the Permian (Midland increasing from 2 to 5 rigs by YE) should help drive a inflection in volumes in 2017, with Alpine High improving the efficiency of long-term capital allocation, however given recent performance, we still see greater value elsewhere. Hold.</p> <p>What to look for on the call? 3Q Permian Oil Vols Light: Pro-forma vols of 438 Mboe/d were broadly inline with DBe 439 Mboe/d with onshore vols a beat (270 vs. 265 Mboe/d) on higher gas sales. Permian oil vols (80 Mbopd) came in light vs DBe 83 Mbopd, which alongside the higher than expected NA gas</p>

¹³ Deutsche Bank, "Apache Corp., Alpine High Not Quite High Enough for Market Expectations," November 3, 2016, 12:57 PM.

Exhibit 12

Impact Date	Event
	<p>volumes drove a 1% drop in the FY16 NA onshore production mix to 41%. FY16 NA onshore volumes now expected at the high-end of the prior 268-278 Mboe/d guide (though ests were trending there given 1H16 outperformance - DBe at 276 Mboe/d) and a 41% oil mix while the intl target was tightened to closer to the mid-pt of the 170-180 Mboe/d guide (67% oil mix maintained).</p> <p>FY16 Budget/Onshore Ramp: The FY16 budget was maintained at \$2Bn with activity levels at Alpine High anticipated to remain at 4 rigs though 3 additional rigs (5 total) are expected to be added to the Midland – aligning APA’s Permian vol trajectory with the previously disclosed plan to return to growth by 2H17. We expect mgmt to frame the discussion on the 2017 budget by addressing progress on infrastructure build-out in the Alpine High and the sensitivity of Midland/other onshore activity levels on pricing assumptions for the commodity entering 2017.</p> <p>Asset Updates: While we thought mgmt did their part in framing expectations into 3Q (little on the Alpine High as focus remains on infrastructure roll-out), the stock’s decline (~5% underperformance at time of print vs. the peer group) speaks to a market that was willing to put money on being surprised. With results from only 2 Alpine High wells (Woodford), look for mgmt to highlight current drilling activity in the play and to frame expectations on near-term results timing.</p> <p>3Q Results: CFO (ex WC) was broadly in-line (\$620 vs. DBe \$614mm) as a slightly lower oil mix and modestly higher LOEs were offset by better than expected oil realization and lower production taxes. Details within.</p> <p>Evercore wrote that the Company’s total gross production, topped its and consensus expectations, while adjusted EBITDAX topped the analyst’s estimate, “though a larger-than-expected cash tax outflow” led to a cash flow miss versus the analyst’s estimate. Evercore commented that “APA disclosed an additional 2 Alpine High results which were inline with previous disclosure”.¹⁴</p>

¹⁴ Evercore ISI, “Apache, The Fog of War,” November 3, 2016, 12:19 PM.

Exhibit 12

Impact Date	Event
	<p>Within our coverage group, APA is a stock that has undergone some of the most profound changes through the downturn. We have attributed TTM outperformance to APA's emergence from the downcycle with lower leverage than peers protecting both the share count (from bloat) and dividend. While the portfolio has been greatly streamlined, APA's financial disclosure is starting to promote better comparability with peers and a clearer view of capital deployed and returns. Our view has been that while the portfolio is more defensive than peers, that capital efficiency and growth would lag in the upcycle. Adding analytical complexity is Alpine High, where APA's confidence is notable and backed up by a capex commitment (now ~\$560 mm spend in 2016, ~40% of NAM). APA disclosed an additional 2 Alpine High results which were inline with previous disclosure, in our view. History suggests that as early stage plays move to development mode (particularly those that prove highly accretive to the base business) there are multiple opportunities to revisit view. We are paying attention. Maintain Hold.</p> <p>3Q16 Results. APA reported total gross production of 520 mboe/d, exceeding our/street estimates of 508/501 mboe/d. Total NAM volumes of 278 mboe/d exceeded our 266 mboe/d estimate driving the production beat, which was partially offset by a ~8 mboe/d q/q decline in North Sea production where planned maintenance turnarounds and third-party facilities restrictions impacted production. Gross 3Q16 capex of \$493mm came in 9% below our \$541mm estimate while costs came in ~inline ex. per-unit LOE of \$7.98/boe which was ~10% above our estimate. Adj. EBITDAX of \$896mm beat our \$813mm primarily on higher revenues though a larger-than-expected cash tax outflow contributed to CFPS of \$1.63 missing our \$1.97 estimate. APA averaged 14 rigs in 3Q (5 in NAM Onshore), D&C'ing 46/41 gross/net wells (35/30 NAM Onshore).</p> <p>What to look for on the call? 1) 2017. APA will add 3 Midland rigs in 4Q contributing to a return to Permian growth in 2H17, while running 4-5 rigs on Alpine High. Note Midland WC well performance has improved at APA due to new completions and improved targeting with one disclosed 7.5k-ft lateral Midland WC/B well reaching 1,980 boe/d (78% oil) in 3Q. Next year's budget will be set (with a range) with a view to cash flow neutrality in a 'conservative' commodity scenario, with the real option to increase spending as prices allow. We look for more detail on production trajectory and capital allocation within & outside the Permian. 2) High level</p>

Exhibit 12

Impact Date	Event
	<p>update. APA today announced the addition of ~13k net acres (now at 320k net) within the Alpine High and two incremental early (Woodford) well results, the Redwood 1H and Blackhawk 1H. Expect interest in APA's plans for delineating the play (incl. add'l zones, i.e. Penn, Wolfcamp, Bone Spring), timing of installation of temporary processing capacity and infrastructure buildout through mid-2017. We expect APA to provide intraquarter updates on Alpine High developments as warranted. 3) Int'l. APA plans to begin an exploration program next year offshore Suriname on block 53 as well as finishing seismic on Block 58 near the Guyana border with a wildcat well planned. In the N. Sea the Storr well encountered two separate fault blocks (55% WI).</p> <p>JP Morgan wrote that the Company's "[s]olid 3Q16 results will likely be overshadowed by the most recent batch of Alpine High wells, which look mixed relative to expectations." Regarding "the Mont Blanc 2H well, the 3rd Bone Spring well in Alpine High," JP Morgan "believe[d] the relatively steep oil decline in the Mont Blanc 2H well after 100 days will be a focus of the market today." The analyst commented that Apache's "EBITDA beat in 3Q16 looks to be largely driven by unusually low production taxes." JP Morgan noted that "APA now expects to hit the high end of its FY16 NaM production guidance".¹⁵</p> <p>JPM View: Solid 3Q16 results will likely be overshadowed by the most recent batch of Alpine High wells, which look mixed relative to expectations. While APA delivered its strongest result thus far, with an IP-24 of 18 MMcf/d of gas in the Woodford, we believe the relatively steep oil decline in the Mont Blanc 2H well after 100 days will be a focus of the market today. Meanwhile, the 13% EBITDA beat in 3Q16 looks to be largely driven by unusually low production taxes.</p> <p>Alpine High. APA completed 5 wells in 3Q16, 3 of which were disclosed in the September update. Among the remaining 2 wells, the Redwood 1H in the overpressured Woodford delivered the highest Alpine High gas IP-24 at 18 MMcf/d, 2.7 times the median gas IP of the 9 Alpine High Woodford and Barnett wells reported thus far. The Blackhawk 1H in the normally pressured Woodford tested IP-24 of 5.3 MMcf/d of gas, 224 Bo/d of oil, and 245 Bo/d of NGL</p>

¹⁵ JP Morgan, "Apache Corp, 3Q16 Flash – ALERT," November 3, 2016, 10:31 AM.

Exhibit 12

Impact Date	Event
	<p>and is producing in line with the average of all Alpine High wells announced thus far. APA also provided color on the production profile of the Mont Blanc 2H well, the 3rd Bone Spring well in Alpine High. The oil production for Mont Blanc 2H has declined from its peak in excess of 1,000 Bo/d to 220 Bo/d in a span of 100 days.</p> <p>Guidance. APA now expects to hit the high end of its FY16 NaM production guidance of 268-278 MBoe/d. International production guidance remains unchanged at 170-180 MBoe/d as well as capex at \$2 billion. As a reminder, APA had bumped capex to \$2B in the September update with 25% of capital spending in 2016 allocated to Alpine High.</p> <p>Permian Update. Permian oil volumes averaged 79.8 MBo/d, down 8% sequentially. In the Delaware, APA placed 8 gross operated wells onto production, which included a 3rd Bone Spring well at Pecos Bend called Pelican 106H, which achieved an IP-30 of 942 Boe/d. APA placed 16 gross operated wells in the Midland Basin, the NW Shelf, and the Central Basin Platform, including 13 wells in the Yeso play. Importantly, APA is accelerating Midland Basin activity going to 5 rigs by year-end with a focus on the Wolfcamp and Spraberry intervals in the Wildfire, Azalea and Powell areas.</p> <p>North Sea Update. North Sea total volumes dialed in at 62 MBoe/d, down 12% with oil volumes at 49.2 MBo/d sequentially down 17% because of planned turnarounds and facility restrictions in the Forties Field. APA commented that it expects North Sea production to return to normal levels by 4Q16. In the Beryl Area, the Nevis North NNA well came online mid-September at an IP-30 of 20 MMcfe/d. On the call, we expect more color on the Storr discovery, where the exploration well targeting the Beryl and Nansen sands encountered hydrocarbons in 2 separate fault blocks.</p> <p>Production: Actual 520 MBoe/d; Street 508 MBoe/d; JPMe 511 MBoe/d; 2Q16 535 MBoe/d.</p>

Exhibit 12

Impact Date	Event
	<p>Morgan Stanley wrote that the Company's results were "in-line yet tax-driven and [with] lower oil volumes" than expected. The analyst remarked that Apache's "Alpine High disclosures [were] likely below elevated expectations," because "expectations were for [a] higher amount of data disclosure".¹⁶</p> <p>Limited incremental disclosure on Alpine High likely impacts sentiment as expectations remains High. APA is up ~20% relative since AH disclosure in September. Focus on the call on timing of further AH testing and infrastructure build-out. Results in-line yet tax-driven and lower oil volumes.</p> <p>Alpine High disclosures likely below elevated expectations. APA increases its Alpine High acreage position from 307k (September) to 320k acres. Further, two incremental results were provided with earnings, both targeting Woodford. The Redwood 1H IPed 18MMcfd, APA's best gas IP rate in the play to date, and is the furthest northwest well. The second incremental well, the Blackhawk 1H, IPed at 8.1MMcfd, below the nearby Fox State at 12.6 MMcfd yet early in play delineation and potentially drilled on a hazard. Other highlights from Alpine High includes longer data flow history indicating shallow declining gas rates in the play, yet logarithmic scale makes conclusions difficult. Overall, expectations were for higher amount of data disclosure. We await a key delineation test in the far southeast (Pecos county) of APA's acreage position, potentially before 4Q16 results. This is an important test given: (1) it's a large step-out from tested/reported results; (2) APA's acreage position is more contiguous in the southeast portion of the play; and (3) answers questions on the pressure gradient and play prospectivity as move south and east. See more detailed discussion in Apache Corp.: Permian Rising: Alpine High Changes APA's Game (23 Sep 2016).</p> <p>Call today at 2pm EDT. Focus on:</p> <ul style="list-style-type: none"> - Timing of next Alpine High well results disclosure, particularly: (1) testing of Woodford in West Pecos in the southeast of the play, (APA appears to have kept a rig there for most of past 2 months)(see above); (2) any planned Penn laterals testing oil potential; (3) further testing of Bone Spring and Wolfcamp in the play's northwestern core; (4) timing of testing development-

¹⁶ Morgan Stanley, "Apache Corp., 3Q16: Focus Remains on Alpine High," November 3, 2016, 11:17 AM.

Exhibit 12

Impact Date	Event
	<p>grade completion design (beyond current delineation-grade 4,100ft lateral and relatively low proppant load).</p> <p>- Details of infrastructure build-out and capex estimate in 1H17 to bring Alpine High to first production at mid-year and/or potential to leverage midstream companies.</p> <p>Piper Jaffray wrote that the Company reported an “EPS and cash flow beat, ’16 capex guidance [was] unchanged, guiding to high end of ’16 NAM onshore and midpoint of International and offshore production.” The analyst remarked that “[a]ll eyes will be on the two Alpine High well results and we are not sure these will be enough to fire investors up”:¹⁷</p> <p>All eyes will be on the two Alpine High well results and we are not sure these will be enough to fire investors up, relative to well results reported this quarter from other producers in plays such as the STACK, Delaware, Midland and Bakken. APA announced the Redwood 1H (over-pressured Woodford) which had a peak 24 hr IP rate of 18 MMcf/d and the Blackhawk 1H (normally pressured Woodford) which had a peak 24 hr IP rate of 1,352 boe/d (65% gas, 17% oil, 18% NGLs). We think the most intriguing well result reported by APA was a Montney well with an IP of 3,767 boe/d (53% condensate). Overall, hard to say how investors will react to the release (EPS and cash flow beat, ’16 capex guidance unchanged, guiding to high end of ’16 NAM onshore and midpoint of International and offshore production).</p> <p>EPS and Cash Flow Beat: APA reported Q3 adjusted EPS of (\$0.03) which beat our estimate of (\$0.09) and the Street at (\$0.14). The beat was primarily due to other items in our model as the EPS variances for production, realizations and costs were negative relative to our expectations. Adjusted EBITDAX: \$896M was higher than SCI and the Street at \$873M and \$865M.</p> <p>Q3 Production: Total production of 520 Mboe/d (including Egypt non-controlling interest and tax barrels) was in-line with our estimate and higher than the Street at 509 Mboe/ d. Oil</p>

¹⁷ Piper Jaffray, Simmons & Company, “Apache Corporation, Q3’16 Quick Look: Are Alpine High Well Results Enough?” November 3, 2016, 8:54 AM.

Exhibit 12

Impact Date	Event
	<p>production of 271 kb/d missed our estimate of 276 kb/d, but was in line with the Street. Relative to our expectations, North Sea was much weaker than expected while US onshore was stronger.</p> <p>Q3 Capex: \$493M (includes Egypt non-controlling interest) vs. SCI/Street at \$550M/ \$498M.</p> <p>'16 Guidance: No change to \$2B capex guidance. APA now expects to be at the high end of the NAM Onshore production range of 268-278 Mboe/d and at the midpoint of International and Offshore production of 170-180 Mboe/d.</p> <p>Boosting Rig Count: APA plans to add 3 rigs to the Midland Basin in Q4'16. This will bring the total Midland Basin rig count to 5.</p> <p>Interesting Montney Well Result: APA announced a Lower Montney well in the company's Wapiti area. This well tested at 10.6 MMcf/d of gas and 2,000 b/d of condensate (3,767 boe/d) with a D&C cost of \$6.2 MM.</p> <p>Conference Call Info: today, Thursday, Nov 3 at 1pm CT. Dial In: 888-830-1024.</p> <p>RBC wrote that the Company's adjusted EPS was better than its and consensus estimates, EBITDA was above RBC's estimate, and production was "slightly below" RBC's estimate. The analyst "expect[ed] Alpine high w[ould] remain the prominent focus for investors" and new well "results appear consistent with its initial three." RBC indicated that the Company's expectation for North American onshore production "at the high-end of its guidance, [wa]s consistent with our current model":¹⁸</p> <p>Our View: We expect Alpine high will remain the prominent focus for investors. Two new Woodford wells results appear consistent with its initial three. We think the update is relatively neutral.</p> <p>Apache Corporation (APA) reported 3Q16 recurring EPS of (\$0.03)/\$1.63 compared to our (\$0.15)/\$1.72 and the Street consensus of (\$0.14)/\$1.75 estimates.</p>

¹⁸ RBC Capital Markets, "APA - 3Q16 CFPS Slight Miss; Adding more rigs to the Permian," November 3, 2016, 9:11 AM.

Exhibit 12

Impact Date	Event
	<p>EBITDA of \$896 million was above our \$837 million model due to lower operating expenses.</p> <p>Production (excluding non-controlling & tax barrels) of 438 Mboe/d was slightly below our 449 Mboe/d model.</p> <p>CAPEX of \$415 million was below our \$483 million estimate and Street consensus of \$484 million.</p> <p>2016 Outlook. there was no changes to the \$2 billion capital expenditure budget or 438-458 Mboe/d production guidance. Management commented that North American onshore would be at the high-end of its guidance, which is consistent with our current model.</p> <p>Alpine High. A couple new Woodford wells. One in the over-pressured area that had a 24-hr IP rate of 18 MMcf/d and a normal pressured well that had a 30-day IP rate of 7 MMcf/d. These wells are generally consistent with prior wells.</p> <p>Permian Basin. Expecting to add three more operated rigs (to five) by year-end 2016.</p> <p>North Sea. The Storr prospect was drilled and results were in line pre-drill expectations.</p> <p>RBC, in a later report, added that it “found the 3Q16 update somewhat underwhelming relative to investors [<i>sic</i>] expectations.” The analyst commented that “[u]ncertainty over capital [at Alpine High was] causing some investor angst”.¹⁹</p> <p>Our view: “Alpine High” has become synonymous with APA. The company carries the task of proof of concept by providing investors with salient data that demonstrates the plays potential.</p>

¹⁹ RBC Capital Markets, “Apache Corporation, Carrying the Load at Alpine High,” November 4, 2016, 1:05 PM.

Exhibit 12

Impact Date	Event
	<p>We found the 3Q16 update somewhat underwhelming relative to investors expectations. However, a number of wells on flowback should be available over the coming months.</p> <p>Key points:</p> <p>Uncertainty over capital causing some investor angst. Capital efficiency can degrade during early stages of development, especially with large infrastructure needs. For now, APA is bearing the burden of initial infrastructure costs but down the road could find a midstream partner, in our view. The unknown factors like development pace and scale positions likely position APA with the task, for now. Management provided a broad framework for the 2017 objectives but no specific capital commitment was provided. We expect the 2017 capital plan in February, including the infrastructure spending needs for Alpine High and possibly a longer range outlook. We think the 2017 midstream capital at Alpine High could amount to \$300-350 million up from around \$200 million in 2016. Significantly more gas infrastructure will be needed if management's view of the play producing "Bcf's" over time is correct.</p> <p>A couple of new Alpine High wells scrutinized but generally appear in line. A couple new Woodford wells. One in the over-pressured area that had a 24-hr IP rate of 18 MMcf/d (all gas) and a normal pressured well that had a 30-day IP rate of 7 MMcf/d (13% oil). These wells are generally consistent with prior wells. Additional production data that shows oil volumes dropping on the Bone Spring completion (Mont Blanc 2H) drew some concern but recognize the short lateral and smaller frac. Several wells were completed and are now flowing back that could be announced before the next earnings update. Additionally, the King Hidalgo, evaluating the southern extent of the trend, is drilling.</p> <p>Patience is a virtue. Despite the large capital outlay for infrastructure development, the Alpine High had a low cost of entry compared to recent M&A acreage values. We think investors should remain patient and evaluate the play from a full-cycle prospective, recognizing initial results are nothing more than proof of concept. Given the structural complexity and lack of development, the Alpine High will take time to optimize. Early time results cannot be compared to other plays, at least not yet.</p>

Exhibit 12

Impact Date	Event
	<p>More “Traditional” unconventional Permian activity. Three more operated rigs are joining the current two in the Midland Basin soon. The additional rigs should help the region return to growth by 2H17.</p> <p>Cash flow neutrality underpins 2017. The foundation for 2017 capital is to sustain production and generate free cash flow in the North Sea and Egypt while growing Permian including investment for Alpine High.</p> <p>Societe Generale wrote that the Company’s adjusted EPS was better than its and consensus expectations, while DCFPS equaled the analyst’s estimate but was short of consensus. The analyst saw the “selloff” in reaction to the Company’s results as a “a buying opportunity”:²⁰</p> <p>3Q16 Financial Review: APA generated EPS/DCFPS (discretionary cash flow per share after dividends) of \$(0.03)/\$1.46 vs SGE (\$0.09)/\$1.46 and Street \$(0.13)/\$1.52. Reported 3Q16 of \$(1.60) included \$(1.56) of net charges, which were primarily asset impairments, reorganization and discontinued op costs and termination charges offset by minor PRT and asset sales. Adjusted BOE output of 438 MBOE/d (48% US, 52% international) was down 5%, due to reduced investment but more importantly curtailed North Sea volumes on infrastructure maintenance and unplanned 3rd party outages, which reduced oil output. With the exception of Ngls, QOQ price realizations were up, with blended BOE rising 1.2%. And production costs were lower than our expectations. CFFO generated of \$652MM exceeded net E&P and GTP cap-ex of \$415MM and dividends of \$95MM, which is unlike many US Large Cap peers. At quarter’s end, APA had cash of \$1.23 billion (\$3.23/share), up nominally vs 2Q16 with LTD flat. At quarter’s end, APA had LTD/Book Capitalization of 27.4% and 23.5% net of cash. Going forward, APA plans to increase E&D activity in the Midland (+3 rigs to 5) and is running 4 rigs at the Alpine High. By YE, APA expects its cash balance to rise to \$1.5 billion given its current E&D program, which will remain within its \$2 billion 2016 cap-ex plan, which includes the new rigs and ongoing Alpine High work.</p>

²⁰ Societe Generale, “Apache Corp, 3Q16: Adjusted EPS beat and output in line with plans, and DCF> Cap-ex,” November 3, 2016, 10:15 AM.

Exhibit 12

Impact Date	Event
	<p>Operations observations: During 3Q16, APA ran 14 rigs globally (9 intl. and 5 US). APA's traditional operations remain on plan (US onshore, International and offshore), but the news of the quarter was the Alpine High discovery, an evolving, low entry cost play. (APA NDR report). APA has captured more net acreage since that announcement (+4%) which it continues to delineate. APA has been drilling around 'hazards' for this gas and liquids play, which we don't think the Street fully appreciates. Elsewhere, in the Permian, improved well drilling and completion designs have delivered stronger results both on the CBP, Delaware and Midland. In the UK North sea, APA made a discovery at Storr and expects production to recover in 4Q16 from planned and unplanned outages. In Egypt, as noted in the operations report, net volumes only declined QOQ because of PSC contract terms, not performance. Drilling success rates at 90%, and better output from improved water-flood management.</p> <p>SG View: In a sector known for 'dilutive promises' (product growth with shareholder dilution), APA stands out as an E&P that lives within its means (cap-ex and dividends vs. cash flow), balancing a global E&P portfolio with conventional and unconventional assets with varying cycle times and risk profiles. The Alpine High is symbolic of APA's transition in the US to organic vs acquisitive growth, and we think the Street under appreciates its economic relevance. Yes, it is a large gas resource with liquids (oil and ngl's), but it will be very low cost and has lower decline rates. We envision APA needing 30" or greater ID pipe for basin evacuation that will head to Mexico. But, APA's management team isn't playing a growth game, but one focused on returns and that sometimes gets lost. Today's selloff (-5.65% 10.10 AM ET) in our opinion is a buying opportunity.</p> <p>UBS wrote that the Company's adjusted EPS "was much better than consensus" "on higher NGL production & crude realizations," and adjusted EBITDX was "~15% above consensus & UBSe." The analyst noted that the Company expected its North American Onshore production "to be at high end of FY16 guidance".²¹</p>

²¹ UBS, "Apache Corporation, 3Q EPS and Production Beat; Underwhelming Alpine High Update with Just 2 New Wells," November 3, 2016.

Exhibit 12

Impact Date	Event
	<p>Clean EPS beats on higher NGL production & crude realizations 3Q clean EPS (loss) of (\$0.03) was much better than consensus of (\$0.13) & UBSe (\$0.20). Adjusted EBITDX rose 3% YoY to \$896MM, ~15% above consensus & UBSe. Consolidated production fell 6% YoY to 520.1 MBoed, just above UBSe 517.1 MBoed on higher than forecasted NGLs. Price realizations fell 5% YoY to \$4.97, 2% above UBSe. Unit costs fell 18% YoY to \$5.21/Boe, 1% below UBSe although exploration cost of \$0.56/Boe was 87% above UBSe \$0.30/Boe.</p> <p>NA Onshore prod'n to be at high end of FY16 guidance; adding 3 Permian rigs APA now expects its North American Onshore volumes to be at the high end of its FY16 guidance range of 268-278 MBoed (down 10-13% YoY pro forma) due to strong production and drilling results this year although the oil mix is down 100 bps relative to prior guidance. Meanwhile, its International & Offshore production should be at the midpoint of its FY16 guidance of 170-180 MBoed (~220-230 MBoed before Egypt tax barrels), roughly flat YoY. And despite adding 3 rigs to the Midland Basin this quarter, APA still expects FY16 spending to be in line with its budget of \$2.0bn. Along with Alpine High in the Delaware Basin, the additional 3 rigs in the Midland will increase APA's total in the Midland Basin to 5 rigs and should help contribute to its Permian position returning to positive sequential growth in 2H17.</p> <p>Alpine High Update APA highlighted it increased its position in the play from ~307k to ~320k net acres, consistent with recent management commentary that it has added acreage & will continue to do so but the majority of the play has been locked up. Since initial disclosure of the play in September, APA completed 2 additional wells targeting the Woodford formation (bringing its total in the play to 9 well completions). The Redwood & Blackhawk wells achieved 24-hour IP rates of ~18 MMcfed (all gas in the overpressured Woodford) & ~6.6 MMcfed (13% oil in the normally pressured Woodford), respectively. We expect more color on the play on today's conference call.</p> <p>Valuation: roughly in line with peers on EV/DACF and P/NAV Our \$64 price target is based on 6.1x normalized 2017E DACF, in line with peer avg.</p>

Exhibit 12

Impact Date	Event
	<p>UBS, in a later report, added that the Company gave an “[u]nderwhelming Alpine High update.” The analyst “reduced 2017-18 CFPS from \$8.05/\$10.75 to \$7.70/\$10.25 on lower production due to a slower ramp-up in production in 2H17” and lowered its price target for the Company to \$59 from \$64.²²</p> <p>Key takeaways from 3Q16 results and the conference call:</p> <p>1) while it will not disclose its 2017 capex budget until February, APA provided a high level summary of its investment priorities for next year (in order): Alpine High (4-6 rig program with first wave of midstream build-out), other Permian focus areas, Egypt & North Sea, & other exploration projects; 2) reiterated expectations for its North American volumes to resume sequential growth in 2H17 (consensus expects QoQ growth to resume in 2Q17); 3) now expects its NA Onshore volumes to be at the high end of its FY16 guidance range of 268-278 MBoed (down 10-13% YoY pro forma); 4) International & Offshore production to be at the midpoint of its FY16 guidance of 170- 180 MBoed (~220-230 MBoed before Egypt tax barrels), roughly flat YoY; 5) despite adding 3 rigs to the Midland Basin in 4Q, APA maintained its FY16 budget of \$2.0bn; 6) we reduced 2017-18 CFPS from \$8.05/\$10.75 to \$7.70/\$10.25 on lower production due to a slower ramp-up in production in 2H17.</p> <p>Underwhelming Alpine High update</p> <p>APA highlighted it increased its position in the play from ~307k to ~320k net acres, consistent with recent management commentary that is has added acreage & will continue to do so but most of the play is locked up. Since initial disclosure of the play in September, APA completed 2 additional wells targeting the Woodford formation (bringing its total in the play to 9 well completions). The Redwood & Blackhawk wells achieved 24-hour IP rates of ~18 MMcfed (all gas in the over-pressured Woodford) & ~6.6 MMcfed (13% oil in the normally pressured Woodford), respectively.</p> <p>Clean EPS beats on higher NGL production & crude realizations</p>

²² UBS, “Apache Corporation, Alpine High Top Priority in 2017, Underwhelming 3Q Update with Just 2 New Wells; 3Q EPS Beats,” November 3, 2016.

Exhibit 12

Impact Date	Event
	<p>3Q clean EPS (loss) of (\$0.03) was much better than consensus of (\$0.13) & UBSe (\$0.20). Adjusted EBITDX rose 3% YoY to \$896MM, ~15% above consensus & UBSe. Consolidated production fell 6% YoY to 520.1 MBoed, just above UBSe 517.1 MBoed on higher than forecasted NGLs. Price realizations fell 5% YoY to \$4.97, 2% above UBSe. Unit costs fell 18% YoY to \$5.21/Boe, 1% below UBSe although exploration cost of \$0.56/Boe was 87% above UBSe \$0.30/Boe.</p> <p>Valuation: premium to peers on EV/DACF but in line on price/NAV \$59 PT (was \$64) assumes 0.8x NAV, or 6.0x 2018E DACF (half turn above hist avg).</p> <p>Wells Fargo increased its 2016 adjusted EPS estimate for the Company but lowered 2017 “following the release of 3Q earnings”:²³</p> <p>Summary. We have updated our model assumptions following the release of 3Q earnings. The net impact of the update shifts our EPS estimates for 2016 and 2017 from -\$0.52 and \$1.23 to -\$0.38 and \$1.17, respectively. A more detailed earnings model can be found in the exhibit within.</p> <p>Valuation Range: \$65.00 to \$75.00 Our valuation range is based on our NAV estimate of \$59.37 to which we apply a 15% premium to account for upside potential. Risks include material sustained weakness in commodity prices and heightened geopolitical risk compared to peers given substantial operations in Egypt.</p> <p>Investment Thesis: The company holds an expansive portfolio of attractive assets domestically and internationally. With a strong balance sheet and superior cash flow characteristics we expect shares to outperform the group.</p>

²³ Wells Fargo, “Apache Corporation, APA: Model Update,” November 4, 2016.

Exhibit 12

Impact Date	Event
	<p>Wolfe wrote that investor “concerns about [Alpine High] infrastructure costs aren’t surprising” and “reflect some of the unseen costs with getting a project in a relatively undeveloped area off the ground. ... But the questions around costs, an uncertain growth outlook for 2017 as first gas volumes hit the market midway through the year, and lack of longer-term production histories give us pause.” The analyst noted that the Company’s “Permian volumes were a little disappointing,” which “may have weighed on the stock today”:²⁴</p> <p>Infrastructure growing pains but the resource potential is there – The conference call today was dominated by questions around scalability of the new Alpine High play and the associated infrastructure demands necessary to deliver outsized production growth. We have recently been describing the new unconventional play as more akin to a longer-cycle offshore greenfield than a traditional position in US shale, so the concerns about infrastructure costs aren’t surprising to us. They do however reflect some of the unseen costs with getting a project in a relatively undeveloped area off the ground. Management spoke to building out a 60 mile, 30-inch diameter gas pipeline in order to start up flows into the Waha hub by midway through next year. Based on ~\$200k / inch-mile estimate, such a project could run into the \$350Mn range, and potentially more should the company seek to flow gas in different directions or add additional compression to handle incremental volumes. The company is also seeking to build out permanent gas processing capacity, which management estimated in the \$0.40-\$0.60/cf range. Management also described the Alpine as a position to be scaled into the “b’s per day” range (we currently estimate run-rate of ~750mmcf/d by 2022). Assuming management numbers, there’s likely ~\$100Mn of annual capital requirements for processing, not to mention need for an NGL takeaway line as volumes exceed trucking capacity. None of this is directly negative. In fact, management’s commitment to the infrastructure buildout speaks to its conviction in the long-term resource potential of the play itself. But the questions around costs, an uncertain growth outlook for 2017 as first gas volumes hit the market midway through the year, and lack of longer-term production histories give us pause. Maintain Peer Perform.</p> <p>Permian volumes were a little disappointing – Sequential decline in Permian volumes and a notable decline in oil volumes (down 6kbd sequentially while NGL and natural gas volumes</p>

²⁴ Wolfe Research, “Apache Corp., Bring me a Higher love,” November 3, 2016.

Exhibit 12

Impact Date	Event
	<p>were effectively flat). Moreover, the company is guiding to the midway point of 2017 as being the inflection point for Permian growth. We think this may have weighed on the stock today. The company is adding another three rigs to Midland through the end of this year which should help lift oil volumes in 2017, but oil growth in 2017 is light vs higher-multiple peers (we are at ~1% y/y total company oil volume growth, ~2% for North America onshore).</p> <p>Flexibility in the budget– We forecast ~\$2.8Bn of spend in 2017, offset by \$3.1Bn OCF (less Egypt distributions) at ~\$53/bbl WTI. There’s flexibility and monetization potential (SCOOP?) for the Alpine game plan.</p> <p>News coverage attributed the decrease in the Company’s stock price on November 3, 2016 to its earnings announcement.²⁵</p> <p>Following the Company’s disclosures on November 3, 2016, according to Bloomberg, the average of analysts’ price targets for Apache stock increased to \$63.24 from \$63.21, or 0.05%. Of the 36 analysts who published investment ratings for the Company both before and after the earnings announcement, one increased its ratings. (See Exhibit 5C.)²⁶</p> <p>Remark: Given that: (i) the Company’s “largely in line results (slight miss on oil vols offset by lower production tax) [] underwhelm[ed], particularly given recent performance”;²⁷ and (ii) Apache’s “Alpine High disclosures [were]</p>

²⁵ See, e.g., *Seeking Alpha*, “Apache a buy on weakness, SocGen says, as Alpine underappreciated,” November 3, 2016, 2:57 PM.

²⁶ Exhibit 5C contains a summary of analysts’ price targets and rating actions for Apache surrounding each event date, as provided by *Bloomberg*.

²⁷ Deutsche Bank, “Apache Corp., Alpine High Not Quite High Enough for Market Expectations,” November 3, 2016, 12:57 PM. See also, e.g., Bank of America Merrill Lynch, “Apache Corp, 3Q16 Earnings recap: return to growth from 2Q17, but Alpine High skews mix to US gas,” November 3, 2016, 11:26 PM; Morgan Stanley, “Apache Corp., 3Q16: Focus Remains on Alpine High,” November 3, 2016, 11:17 AM; Societe Generale, “Apache Corp, 3Q16: Adjusted EPS beat and output in line with plans, and DCF> Cap-ex,” November 3, 2016, 10:15 AM.

Exhibit 12

Impact Date	Event
	likely below elevated expectations,” ²⁸ the statistically significant Company-specific stock price decline on November 3, 2016 is consistent with that expected in an efficient market.
2/23/2017	<p>Before market open on Thursday, February 23, 2017, the Company announced its fourth-quarter and full-year 2017 financial results. For the quarter, Apache reported production of 490 mboe/d, revenue of \$1.46 billion, an EPS loss of -\$0.48, and an adjusted EPS loss of -\$0.06.²⁹</p> <p>The consensus estimates of the Company’s quarterly revenue and adjusted EPS were \$1.51 billion and \$0.07, respectively.³⁰</p> <p>John J. Christmann IV, Apache’s chief executive officer and president, commented on the Company’s results:³¹</p> <p style="padding-left: 40px;">2016 was a very successful year and an important step in Apache’s transformation. We protected our balance sheet in a volatile price environment, remained focused on costs, and allocated our capital to high-return projects and strategic testing opportunities. This strategy resulted in an expanded economic drilling inventory, meaningful improvements in Permian Basin well performance, a more streamlined portfolio, and lower overhead and operating costs. We also discovered and announced the Alpine High, a sizeable new resource play in the</p>

²⁸ Morgan Stanley, “Apache Corp., 3Q16: Focus Remains on Alpine High,” November 3, 2016, 11:17 AM. *See also, e.g.*, JP Morgan, “Apache Corp, 3Q16 Flash – ALERT,” November 3, 2016, 10:31 AM; RBC Capital Markets, “Apache Corporation, Carrying the Load at Alpine High,” November 4, 2016, 1:05 PM; UBS, “Apache Corporation, Alpine High Top Priority in 2017, Underwhelming 3Q Update with Just 2 New Wells; 3Q EPS Beats,” November 3, 2016.

²⁹ Apache News Release, “Apache Corporation announces fourth-quarter and full-year 2016 financial and operational results and announces 2017 capital program,” February 23, 2017. *See also GlobeNewswire*, “Apache Corporation Releases Fourth-Quarter and Full-Year 2016 Financial and Operational Results,” February 23, 2017, 7:30 AM.

³⁰ *TheFlyontheWall.com*, “Apache reports Q4 adjusted EPS (6c), consensus 7c,” February 23, 2017; *Bloomberg First Word*, “Apache Reports 4Q Unexpected Loss,” February 23, 2017, 7:31 AM.

³¹ Apache News Release, “Apache Corporation announces fourth-quarter and full-year 2016 financial and operational results and announces 2017 capital program,” February 23, 2017.

Exhibit 12

Impact Date	Event
	<p>Delaware Basin, which brings significant drilling inventory and puts Apache in one of the most exciting and competitive positions in the industry.</p> <p>After two years of dramatic reductions to our capital program, our strategic objective has shifted in 2017 to delivering returns-focused growth. Accordingly, we are increasing our capital budget more than 60 percent this year over our 2016 spend, which will materially impact Apache's production trajectory beginning mid-year. We are poised for excellent long-term organic growth through 2018 and beyond, which will be driven primarily by our high-quality acreage positions in the Delaware and Midland basins.</p> <p>In addition, Apache provided capital and production guidance for 2017 and 2018:³²</p> <p>... 2017 capital budget of \$3.1 billion, with nearly two-thirds directed towards the Permian Basin; [and "a preliminary view into 2018 capital, with an expected budget for the year of \$3.2 billion"] and</p> <p>Outlines strong, organic growth rates from fourth quarter of 2016 to the fourth quarter of 2018:</p> <p style="padding-left: 40px;">Total company production is projected to grow at an average annual rate of approximately 10 percent.</p> <p style="padding-left: 40px;">Total Midland and Delaware basin production is projected to grow at an average annual rate of more than 50 percent.</p> <p style="padding-left: 40px;">Oil production in the Midland and Delaware basins is projected to grow at an average annual rate of approximately 18 percent.</p>

³² Apache News Release, "Apache Corporation announces fourth-quarter and full-year 2016 financial and operational results and announces 2017 capital program," February 23, 2017.

Exhibit 12

Impact Date	Event
	<p>Christmann commented on the Company's production targets:³³</p> <p>Once scheduled maintenance is behind us and the impact of our increased capital investment program begins to take hold, we anticipate our production volumes will steadily climb in the second half of the year when Alpine High sales volumes, increased Midland Basin activity, and the North Sea Callater development all come online. We are very confident that our portfolio is capable of delivering strong production growth and achieving the guidance we are providing today.</p> <p>The Company held a conference call with investment analysts the same day.³⁴</p> <p>Bank of America Merrill Lynch wrote that the Company's adjusted EPS was "in line" with its estimate but missed consensus, while "revenue looked light (-\$0.31c), with higher exploration and G&A expense offset by an unusually low tax rate." The analyst noted that the Company's oil and gas production was below consensus, "most likely on the PSC entitlements in Egypt." BofAML opined that the "highlight of the quarter is that APA has provided 2017 guidance and preliminary guidance through 4Q18." The analyst "continue[d] to view APA's strategic outlook that shifts to gas as challenging a multiple that, ex Egypt/NorthSea, trades above most oil-levered peers".³⁵</p> <p>In-line quarter, helped by tax Adjusted EPS of (\$0.06) missed consensus of \$0.06, but was in line with BofAML (\$0.08). Versus our estimate, revenue looked light (-\$0.31c), with higher exploration and G&A expense offset by an unusually low tax rate. Oil and gas production of 490 Mboepd (including Egyptian tax barrels) was below consensus of 503 Mboepd, most likely on the PSC entitlements in Egypt. The highlight of the quarter is that APA has provided 2017 guidance and preliminary guidance</p>

³³ *Ibid.*

³⁴ *Thomson Reuters, StreetEvents*, "APA – Q4 2016 Apache Corp Earnings Call, EVENT DATE/TIME: FEBRUARY 23, 2017 / 7:00PM GMT," February 23, 2017, 2:00 PM.

³⁵ Bank of America Merrill Lynch, "Apache Corp, 4Q16 Earnings first look: EPS helped by tax; capex +60% underlines shift to gas," February 23, 2017, 12:04 PM.

Exhibit 12

Impact Date	Event
	<p>through 4Q18. For 2017 and 2018, it plans Capex increases to \$3.1bn and \$3.2bn, respectively, from \$1.9bn in 2016, which is above our estimates largely on Alpine high infrastructure investment. Through 2018, international production that is essentially flat -- helped by entitlement barrels from a re-up in Egypt spending -- leaves the US onshore to carry the weight of planned total company growth of 7%-13% CAGR between 4Q16 and 4Q18. However, in absolute terms, this equates to a 13,000-21,000 boepd increase in Permian oil production over two years. In our view, the implied shift to gas will remain a headwind for APA's absolute and relative share performance versus peers. We maintain our Underperform rating.</p> <p>Future tied to gas risks margin contraction Management's 2017-2018 outlook has an implied average top-line growth rate of 10%, with Midland and Delaware production expected to grow at an annual rate in excess of 50%. Embedded in this target is an 18% CAGR in Permian basin oil production over the next two years – but the majority of planned growth is Alpine high gas, which we expect to dilute its relative multiple versus peers. In our view, a key risk is the impact of a flood of new gas production on regional differentials – specifically, at the Waha hub, leaving APA's unit cash margins at risk vs. oil levered growth stocks. Note that, as with many of the US E&Ps that have provided 2017 guidance, growth is back-end loaded, with a ~10% drop in total company production through 2Q17 on North Sea maintenance, before rebounding through year-end, mainly on the gas ramp from the Alpine High.</p> <p>Capex jumps 60% in 2017 and 2018 Planned spending increases by ~60%, of which ~\$900mm will be allocated to its North Sea and Egyptian assets to maintain long-term cash flow, while the bulk (\$2bn) will be spent on the Permian. Note that this includes \$500mm for infrastructure, as previously announced. Under its 2017 budget, APA expects to cover an outspend vs. operating cash at strip with ~\$400mm of noncore asset sales in the Permian that closed in 1Q17. It also expects to receive proceeds from the sale of North Sea midstream infrastructure assets in the third quarter. From 2018, we expect planned spending of \$3.2bn to have a similar capital allocation, as we estimate around \$800mm-\$1bn is needed to maintain international production and cash flow less Egypt production entitlements drop.</p>

Exhibit 12

Impact Date	Event
	<p>Maintain Underperform: PO risks skewed lower In summary, we continue to view APA's strategic outlook that shifts to gas as challenging a multiple that, ex Egypt/NorthSea, trades above most oil-levered peers. While a reduced tax burden in the UK North Sea lifted our PO to \$66 under our base case, growth guidance that confirms a shift to gas leaves risks to valuation support from an increasingly gas-weighted growth outlook skewed lower. Conference call March 23rd at 2:00pm ET, Dial-in: 888.830.1024; International: 706.643.2651; Pin: 483768756</p> <p>Bank of America Merrill Lynch, in a later report, added that the Company's "relatively benign 4Q16 turns attention to Apache's strategy that increasingly places the 'Alpine High' wet gas play at the center of its strategic outlook." The analyst cautioned that "Apache's pivot to gas is a drag on multiple compression." The analyst decreased its price target for the Company to \$60 from \$66 "due to updated guidance".³⁶</p> <p>Preliminary guidance confirms a pivot to gas A relatively benign 4Q16 turns attention to Apache's strategy that increasingly places the 'Alpine High' wet gas play at the center of its strategic outlook. In our view, Apache will return to growth this year - but not until 2H17 as has been the trend for many peers. However the critical difference is that growth would be driven by gas, reducing APA's oil mix by about 10% through 4Q18. Planned spending of \$3.1-\$3.2bn over the next two years is up around 60% from 2016; \$900mm holds international production flat; the primary balance of remaining spend targets the Midland / Delaware basins, where production increases about 150% between 4Q16 and 4Q17. However of the about 128,000 boepd projected increase in production, oil accounts for only 17,000 bopd confirming a pivot towards gas.</p> <p>Revised guidance lowers PO to \$60 By our analysis which assumes gas prices at \$3.50 but oil at \$70 from 2020, Apache's pivot to gas is a drag on multiple compression – raising the risk of widening gas differentials given the</p>

³⁶ Bank of America Merrill Lynch, "Apache Corp, 4Q16 Earnings Recap: lowering PO to \$60 on confirmed pivot to gas," February 24, 2017, 7:27 AM.

Exhibit 12

Impact Date	Event
	<p>implied ramp in West Texas gas production approaching 700 mmcf/d within two years. When separating the value of Egypt and the UK North Sea our price objective is \$60/sh – lowered from \$66/sh due to updated guidance. This is based on a five-year target multiple for the wider sector of 5.5x EV/DACF. Undisclosed proceeds from non-core asset sales may be moderately accretive in 2H17 but with limited upside to fair value during its transition to gas, we believe appropriate rating vs the large cap E&P peer group is Underperform.</p> <p>In line quarter, helped by tax Adjusted EPS of (\$0.06) missed consensus of \$0.06 but was in line with BofAML (\$0.08). Versus our estimate, revenue looked light (-\$0.31c) with higher exploration and G&A at close to consensus due to an usually low tax rate. Oil and gas production of 490 Mboepd (including Egyptian tax barrels) was below consensus of 503 Mboepd, mostly likely on PSC entitlements in Egypt. Management introduced 2017 guidance and preliminary guidance through 4Q18. Capex increases to \$3.1bn and \$3.2bn, respectively from \$1.9bn in 2016 and by our estimates keeps APA within cash flow at strip, before dividends.</p> <p>Barclays “expect[ed] a negative fundamental reaction to Apache Corporation’s 4Q 16 earnings release and operational update.” The analyst commented that “Apache’s earnings and EBITDA were lower than expectations due to lower liquids volumes and price realizations than expected.” Barclays also observed that “APA offered a preliminary guidance through 4Q18 that calls for back-end loaded organic growth (of 7-13%/year) that we expect to be modestly lower than peers”.³⁷</p> <p>We expect a negative fundamental reaction to Apache Corporation’s 4Q 16 earnings release and operational update. Apache’s earnings and EBITDA were lower than expectations due to lower liquids volumes and price realizations than expected. APA offered a preliminary guidance through 4Q18 that calls for back-end loaded organic growth (of 7-13%/year) that we expect to be modestly lower than peers.</p>

³⁷ Barclays, “Apache Corp., APA Offers Outlook Through 2018,” February 23, 2017, 9:36 AM.

Exhibit 12

Impact Date	Event
	<p>Apache is increasing its 2017 capital budget by more than 60% compared to 2016 levels. The company expects to outspend cash flow, but expects to plug the gap with non-core asset sales. APA plans to spend \$3.1 billion in capital this year with approximately 60% (and ~90% of the North American capital) directed to the Permian Basin. The company plans to invest \$900 million in Egypt and the North Sea. \$500 million of the 2017 budget will be allocated to infrastructure at Alpine High. APA has outlined a preliminary 2018 budget of \$3.2 billion – up 3% from the 2017 budget.</p> <p>Apache expects production to decline in the first half of the year but to start growing mid-2017 when Alpine High sales volumes, higher Midland Basin activity and the North Sea Callater comes on line (Callater will see downtime in 1Q 17 to prepare facilities for tieback). The volume decline should be primarily due to scheduled downtime in the North Sea and Canada and natural declines in low er-margin North America onshore (i.e., Permian) assets.</p> <p>Production guidance calls for 4.5% growth from the fourth quarter of 2016 to the fourth quarter of 2017, and 16% growth from the fourth quarter of 2017 to the fourth quarter of 2018 (based on midpoints of guidance). North America onshore, driven by the Midland/Delaware Basin asset, should drive, the growth as international volumes should remain relatively flat over this time period.</p> <p>APA has added 2017 hedges (which it does not usually have) for the second half of the year. The company has entered put options for July-December, which include 92 mbpd of W TI at a strike price of \$50/bbl and 83 mbpd of Platts Dated Brent at a strike price of \$51/bbl.</p> <p>Apache reported “Clean” EPS of \$(0.06), below our estimate of \$0.00 and consensus of \$0.08. Apache’s adjusted EBITDA of \$878 was 1% lower than our \$887 million forecast. Both oil and NGL production and price realizations were reported low er than expected. Operating expenses were largely in line with forecasts. Gas price realizations exceeded estimates.</p>

Exhibit 12

Impact Date	Event
	<p>Adjusted net loss of \$182 million primarily included the following after-tax items: 1) \$90 million in asset impairments and 2) \$68 million of asset of valuation allowance and other tax adjustments.</p> <p>BMO wrote that the Company's "4Q16 was below expectations on lower volumes" as adjusted EPS, EBITDAX, and total production were all short of the analyst's and consensus estimates. The analyst commented that Apache's 2017 production guidance was "inline" with its estimate but short of consensus while "[c]apex for 2017-18 [was] in line." BMO noted that the Company's 2018 production guidance was "well above" its estimate:³⁸</p> <p>Bottom Line: 4Q16 was below expectations on lower volumes, while 2017 production was impacted by a weaker 1H17. Growth accelerates in 2H17 and the exit rate was inline. Capex for 2017-18 is in line, while the 2018 exit rate volumes are above our model, which appears due to Alpine High as Delaware/Midland is in line and International slightly lower. This likely leads to positive Alpine High revisions, but pushback on gas is driving most of the growth.</p> <p>Key Points</p> <p>4Q16 Below on Weaker Volumes. Apache reported 4Q16 EPS of -\$0.06, versus our/ consensus \$0.05/0.07. EBITDAX of \$878mm compared to our/consensus \$929/886mm. Total production of 490MBoe/d was light to our/consensus 506/503MBoe/d, while oil of 260MBo/d was also below our/consensus 263/265MBo/d. Versus our model, lower oil was across all assets with exception of better North Sea. Realizations were slightly better, as were operating costs, partially offset by higher G&A and interest. Capex of \$563mm was below our/consensus \$590/581mm.</p> <p>2017 Guidance Light on Weak 1H; Growth Accelerates in 2H. Production guidance for 2017 of 486-506MBoe/d was inline with our 502MBoe/d, but below consensus of 510MBoe/d. Capex (ex Egypt MI) of \$3.1Bn was slightly above our \$2.96Bn (\$3.2Bn consolidated), while consensus is \$3.0Bn. The difference to our model was higher Permian (\$2Bn vs. \$1.85Bn), while North Sea/Egypt of \$0.9Bn was inline. Permian capex is primarily directed to</p>

³⁸ BMO Capital Markets, "Apache, 4Q16 and 2017 Production Lower; Alpine High Boosts YE18 Volumes," February 23, 2017, 8:51 AM.

Exhibit 12

Impact Date	Event
	<p>Midland/Delaware, with CBP receiving only <\$100mm. Apache noted volumes will bottom in 2Q17 (North Sea and Canada maintenance and natural declines in NAM) at 372-384MBoe/d (vs. our 432MBoe/d), before exiting at 425-455MBoe/d (vs. our 445MBoe/d) in 4Q17. Alpine High, Midland Basin, and North Sea (Callater tieback) drive 2H17 growth.</p> <p>2018 Guidance Better, While Oil In line. Apache provided a preliminary 2018 budget of \$3.2Bn, in line with our \$3.3Bn estimate. Exit rate (4Q18) production of 485-537MBoe/d is well above our 452MBoe/d estimate. Versus our 4Q18 model, International of 146-158MBoe/d was below our 163MBoe/d, while NAM of 339-379MBoe/d was well above our 289MBoe/d. By asset, Delaware/Midland production of 200-230MBoe/d was well above our 161MBoe/d, but oil of 55-63MBo/d was in line with our 59MBo/d. As such, higher 4Q18 production is primarily driven by higher Alpine High volumes. We use the Low Case (1,100MBoe EUR for 4,100' lateral) type curve to model these volumes.</p> <p>Cowen wrote that “APA 4Q16 reported results that missed expectations, including lower Permian volumes than we had estimated.” The analyst “believe[d] some investors may be negative on Permian outspend as the 2017 capital program has the company outspending cash flow relative to growth projection vs peers.” Cowen noted that the Company’s “[t]otal reported production guidance for 2017 is lower than current street expectation”:³⁹</p> <p>Negative. APA 4Q16 miss, though expectations were low after last week’s Alpine High well results. 2017 capital program has APA outspending cash flow with lower growth than peers. We think investors will look for any update on Midstream partners to help reduce outspend.</p> <p>Stock Thoughts APA 4Q16 reported results that missed expectations, including lower Permian volumes than we had estimated. Total reported production guidance for 2017 is lower than current street expectation. We.</p> <p>What to Expect on the Call</p>

³⁹ Cowen and Company, “Apache Corporation, 4Q16 Earnings at a Glance,” February 23, 2017.

Exhibit 12

Impact Date	Event
	<p>Permian Capex Spend: APA plans to invest ~65% of its total \$3.1B capex budget for 2017 towards the Permian, including \$500MM for infrastructure at Alpine High. We believe some investors may be negative on Permian outspend as the 2017 capital program has the company outspending cash flow relative to growth projection vs peers.</p> <p>Permian Growth: We believe there will be questions regarding APA's growth outlook for Midland/Delaware, especially relative to peers. The company plans to spend ~\$1.4B on the region this year and projects 14% - 21% oil CAGR from 2016 - 2018 exit. Comparatively, OXY plans to spend \$1.0B - \$1.4B in its Permian Resources this year and we estimate an oil CAGR of over 30% from 2016 - 2018 exit. Additionally, PXD plans to spend ~\$2.4B in Spraberry/Wolfcamp in 2017 and grow oil production 33% - 37% YoY.</p> <p>Alpine High: Investors would like a possible APA partnership in Alpine High as it did in Egypt to validate the play's value. We expect this to be a discussion topic on the call.</p> <p>Midstream: APA will spend \$500MM a year on Alpine High midstream. Investors will look for an update on possible third-parties to partner, thereby lowering the company's cash flow outspend.</p> <p>2017 Guidance Highlights Capex: 2017 capex budget is \$3.1B consisting of \$2.2B North America and \$900MM International. 44% of the total budget will be allocated to Delaware & Midland. Capital plan supports 5+ rig program in Midland Basin and 4 - 6 rig program in Alpine High. APA has prioritized the Midland/Delaware and plans to increase activity in the Midland with incremental cash flows, continue Alpine High delineation and initiate optimization/development.</p> <p>Production - Total: The company expects production declines in 1H17 due to reduced 2016 investment, North Sea turnaround and Canada gas plant maintenance. 2Q17 adjusted production guidance of 372 - 384 Mboe/d and 4Q16 adjusted production guidance of 425 - 455 Mboe/d. 2018 exit rate guidance is 485 - 537 Mboe/d. Total reported production guidance is 486 - 506 Mboe/d for FY17 vs street expectation of 510 Mboe/d.</p>

Exhibit 12

Impact Date	Event
	<p>Deutsche Bank wrote that the Company reported “a slight [adjusted EPS] miss on higher costs and weak UK oil vols, [but wa]s likely to be overshadowed by the company’s long-awaited ‘multi-year’ guidance” that was “likely to disappoint investors on the underwhelming oil growth.” The analyst commented that the Company’s 2017 capex guidance was in-line with its estimates while 2018 capex was “an improvement on DB/consensus expectations by \$500mm+”.⁴⁰</p> <p>4Q16 results mostly inline; Gas-wtd near-term production growth outlook APA’s 4Q result, a slight miss on higher costs and weak UK oil vols, is likely to be overshadowed by the company’s long-awaited “multi-year” guidance, which although impressive in headline barrels (Permian +130 Mboe/d by 4Q18, Corp 10% CAGR), is likely to disappoint investors on the underwhelming oil growth (~1.0%-2.0%/yr). Alpine High remains a high quality option to derisk, with an improving pressure regime and multi-stack potential, but barring a material shift in hydrocarbon mix or a gas recovery, we still see greater potential for cash flow growth elsewhere in the sector. Hold.</p> <p>What to look for on the call? Production Outlook: 2017 Light; 2-Yr Exit Rate Growth Gassy: 1) 2017 production guide of 398-415 Mboe/d came in 2.5% below our expectations (417 Mboe/d) at the mid-pt driven chiefly by weaker-than-expected volume contributions internationally. 2) Near-term vol growth of 10%/yr (4Q16-4Q18) exceeded DBe of ~6%; however, oil growth appears underwhelming. Assuming +17 Mbopd of growth out of the Permian (mid-pt of guide) through 4Q18 and a 70% oil mix on int’l volume declines of 8 Mboe/d, we see annual oil growth (4Q16-4Q18) of 2.6% holding GoM, Canada, and Mid-Con oil vols flat to 4Q16. Incorporating DBe declines across the non-core areas mentioned previously suggests oil volume growth of ~1.1%/yr. Look for clarity on YE18 hydrocarbon mix on the call.</p> <p>2017 Budget In-line; 2018 a Pleasant Surprise: O&G spend of \$3.1Bn in 2017 was in-line with DB estimates while a preliminary read on 2018 (\$3.2Bn) is an improvement on DB/consensus</p>

⁴⁰ Deutsche Bank, “Apache Corp., Not all barrels are created equal,” February 23, 2017, 1:02 PM.

Exhibit 12

Impact Date	Event
	<p>expectations by \$500mm+. Expect \$2Bn of the budget to be allocated to the Permian in 2017 (\$500mm to Alpine infrastructure) while Egypt and North Sea capex of \$900mm is in-line (DBe of ~\$850mm).</p> <p>Asset Sales: Funding the Gap: APA completed the sale of two small leasehold packages in the Midland and Delaware in 1Q17 (\$400mm+) with the sale of some UK infrastructure expected to close later in 2017. While disclosed asset disposals are expected to largely mitigate a funding gap of \$530 mm in 2017 at \$55/\$52 Brent/WTI (inclusive of dividend), we expect management to provide insight on further monetization targets particularly in the context of a more aggressive ramp in Permian activity levels.</p> <p>4Q Results: Slight Miss Adjusted EPS loss of \$.06/sh was a slight miss vs. DBe (loss of \$.03/sh) with CFPS (including WC) of \$819mm a slight miss vs. DBe \$860mm (DBe assumed a working capital benefit of \$125mm in 4Q vs. \$152mm actual). Lower than expected production (North Sea oil vols), and modestly higher operating costs (particularly SG&A) drove the cash flow miss. Permian oil volumes were mostly in-line (77.6 Mbopd or +1 Mbopd vs. DBe).</p> <p>Evercore wrote that the Company's fourth quarter total production was "below our/street estimates" and adjusted EBITDAX and cash flow also missed the analyst's estimates. Evercore remarked that Apache's 2017 capex guidance was "in-line with our expectations ... with production below street expectations." The analyst noted that "APA's confidence [in Alpine High] remains clear":⁴¹</p> <p>APA outlines the 2017 inflection, driven by NAM Our focus at APA has been the significant portfolio shift underway that has been led by difficult capital allocation decisions particularly in NAM onshore. Declines in 1H17 are the outcome while capital will be needed to generate a return to growth. APA's 2017 guidance highlighted a number of these trends. Ex-Permian declines in 1H17 look to be compounded with the timing of turnarounds in the North Sea and Canada. 2017 guidance looks to be in-line with our expectations (\$3.1 Bn capex ex-Egypt NCI) with production below street expectations at ~490</p>

⁴¹ Evercore ISI, "Apache, Turning to Growth, Plenty of Questions," February 23, 2017, 12:49 PM.

Exhibit 12

Impact Date	Event
	<p>mboe/d (reported including Egypt tax bbls and NCI). Looking forward, APA clearly has increased confidence in the growth capacity of the Permian + Alpine high (ex-CBP) we see total Permian implied guidance for a 30% production CAGR (4Q18 vs. 4Q16) with oil growth at 5% annualized over the same timeframe (implies 0.75 Bcfe/d of NG and NGL growth over the plan period). It remains early in the life cycle of the Alpine High, but APA's confidence remains clear and today's guidance should underpin this view. Alpine high is rapidly moving from delineation to development and the next few quarters (infrastructure adds around midyear) should help the market clarify view. Hold.</p> <p>4Q16 Results. APA reported total production of 490 mboe/d (incl. NCI), below our/street estimates of 505/505 mboe/d. Total NAM volumes of 261 mboe/d also came in below our 267 mboe/d estimate (natural gas and NGLs), while Egypt and N. Sea volumes also came in modestly below our expectations. 4Q16 capex (ex Egypt NCI) of \$537mm was ~17% below our \$644mm estimate while costs came in slightly above our expectations with per boe LOE and SG&A ~3% and ~16% above our estimates. Thus Adj. EBITDAX of \$848mm missed our \$944mm and CFPS of \$1.91 missed our \$2.01 estimate (ex. disc ops and non-cash exploration). APA averaged 18 rigs in the 4Q (7 Permian), D&C'ing 29 gross operated wells (17 Permian).</p> <p>What to look for on the call?</p> <p>1) Leaning in. While highlighting a capital underspend in 2016 (and maintaining net debt neutrality per plan) APA is clearly willing to accelerate into the cycle with guidance implying a modest organic outspend at current strip (funding support by \$400mm of secured asset sales) and providing a baseline for spending in 2018. This is a departure with past strategy at APA and speaks to visibility the portfolio affords (APA has started to hedge volumes with ~20% of 2017 net oil production (all 2H) now hedged at a \$50/bbl price). APA has underperformed longer term guidance in the past, and management is inherently aware of these past shortfalls, suggesting 2018 guidance was likely set at levels that are significantly risked.</p> <p>2) Mix. While difficult to discern due to Permian disclosure backing out the CBP, guidance does imply a significant NG and NGL mix shift for NAM onshore production with important implications for forward margins. We look for some clarity on assumed NGL mix within the</p>

Exhibit 12

Impact Date	Event
	<p>non-oil barrel and pricing / cost structure shifts that APA expects. While still early in the lifecycle of the play, the forward cost structure of the combined Permian business at APA is clearly shifting.</p> <p>JP Morgan “expect[ed] a negative near-term reaction to the 4Q16 print and outlook given the much weaker than anticipated outlook for 2017 volumes and cash flows.” The analyst noted the Company’s 2017 capex guidance was higher than consensus estimates and “exceed[ed] its 2017 cash flow from operations”.⁴²</p> <p>JPM View: Stock Reaction—Negative. Despite higher 2018 volumes relative to our model, we expect a negative near-term reaction to the 4Q16 print and outlook given the much weaker than anticipated outlook for 2017 volumes and cash flows. In particular, APA guided to 2017 capex of \$3.1 billion, but the company expects capex to exceed its 2017 cash flow from operations. This is a notable variance relative to our \$3.7 billion CFO forecast in 2017, which is essentially in line with the Street forecast of \$3.6 billion.</p> <p>Guidance: APA guided 2017 production at 486 – 506 MBoe/d, which at the midpoint is 3% and 4% lighter than the Street and JPM, respectively. APA guided NaM production at 252 – 263 MBoe/d, which at midpoint is 8% lighter than JPM. International production guidance dialed in at 234 – 243 MBoe/d, which at midpoint is 1% lighter than JPM. APA guided 4Q16 to 4Q18 adjusted production growth rate at 7% to 13% which includes a 4Q16 to 4Q17 exit to exit CAGR of 5%. APA guided 4Q16 to 4Q18 adjusted NAM production growth rate at 14% to 21% which includes a 4Q16 to 4Q17 exit to exit CAGR of 8%. APA’s 4Q17 NAM guide of 281 MBoe/d is 4% below our estimates but 4Q18 NAM guide of 359 MBoe/d is 11% above our estimates. APA guided to a relatively flat exit to exit production profile for international with 4Q17 and 4Q18 adjusted International production dialing in at 159 MBoe/d and 152 MBoe/d, respectively. APA expects Midland and Delaware total production to grow at 50% CAGR from 4Q16A to 4Q18E which includes a 4Q16 to 4Q17 exit to exit CAGR of 49%. Excluding its production on the</p>

⁴² JP Morgan, “Apache Corp, 4Q16 Flash: 2017 CFO Shortfall Versus Expectations Likely to Weigh on Shares Despite Higher 2018 Volume Guide - ALERT,” February 23, 2017, 9:42 AM.

Exhibit 12

Impact Date	Event
	<p>Central Basin Platform, APA expects Midland and Delaware oil production to grow at only 14% - 21% CAGR from 4Q16A to 4Q18E which includes a 4Q16 to 4Q17 exit to exit CAGR of 17%.</p> <p>Capex Guidance: APA guided FY17 Capex at \$3.1B, \$0.1B above the Street and \$0.2B lighter than JPM. 63% of FY17 Capex is dedicated to the Permian Basin which includes 16% for Alpine High midstream. APA FY17 capex incorporates a 5+ rig program in Midland basin and 4-6 rig program at Alpine High. For its International segment, APA expects 2 new concessions in Egypt and Callater to be on line in 3Q17. APA expects to spud its Suriname exploration well in late 1Q17.</p> <p>Cost Guidance: APA guided LOE at \$8.50 to \$9.00 per Boe, in line with JPM, Gathering & Transportation expense at \$200 MM to \$250 MM, 11% higher than JPM at the midpoint and DD&A at \$14 per Boe, \$0.46 higher than JPM. APA expects G&A and Net Interest expense to dial in at \$450 MM and \$400 MM, respectively. APA expects cash taxes at \$125 MM, \$31 MM lower than JPM.</p> <p>Morgan Stanley wrote that the Company was “likely to lag the group today, reflecting a 3% lower than expected (at midpoint) 2017 production guide despite a marginally higher capex.” The analyst “expect[ed] the market to risk APA’s estimates more heavily, given a greater degree of reliance on a new play,” Alpine High. The analyst commented that the Company’s “[e]arnings were modestly weaker than Street expected at CFPS, EPS and production level”.⁴³</p> <p>Production guide for 2017 below expectations on higher capex. Preliminary 2018 budget likely conservative. APA’s 2-year production CAGR below peers’ LT guides and likely perceived as riskier given reliance on new play. Results modestly miss.</p> <p>APA is likely to lag the group today, reflecting a 3% lower than expected (at midpoint) 2017 production guide despite a marginally higher capex. APA’s 7-13% 4Q18/4Q16 CAGR is below guidance provided by direct peers (APC 12-14% oil 2016-20, NBL 11-15% boe 2016-20) and</p>

⁴³ Morgan Stanley, “Apache Corp., 4Q16: Light Quarter and 2017 Guide,” February 23, 2017, 9:53 AM.

Exhibit 12

Impact Date	Event
	<p>peers' encompass a longer period. We also expect the market to risk APA's estimates more heavily, given a greater degree of reliance on a new play. Performance of Alpine High wells under production conditions is a significant known unknown, though early pressure data is encouraging (disclosed in a presentation last week). Earnings were modestly weaker than Street expected at CFPS, EPS and production level (albeit with in-line US volumes)</p> <p>Apache plans on a \$3.1Bn capex in 2017, marginally higher than Consensus \$3.0bn, albeit below MS' \$3.3Bn (we expected higher infrastructure spend on Alpine High). Of the total, \$2.0Bn is earmarked for the Permian with a \$500MM to be spent on Alpine High infrastructure (we expected \$550MM). APA plans on a "5+" rig program in the Midland and 4-6 rigs in Alpine High, both in line with previously discussed plans. APA also provides a preliminary 2018 capex budget of \$3.2Bn. Consensus and MS estimates had been at \$3.7Bn, though on a ~\$60/bl Brent deck, likely higher than what APA is using for planning purposes. On the call listen for the budget's sensitivity to commodity changes and to underlying OFS re-inflation assumptions. On the latter, APA previously talked about a 5% change in CWC for a 10% change in commodity, and echoed peers' statements regarding seeing greater pricing pressure in completion and sand (which it self-sources) vs. rigs.</p> <p>Headline production guidance for 2017 is light, at 486-506Mboed vs. 510Mboed Consensus and 504Mboed MS. APA expects volumes to inflect mid-year (in-line with our expectations). Volumes in 1H17 further depressed, as APA brings forward North Sea maintenance normally scheduled for 3Q into 2Q (to accommodate Callater startup). In addition to FY17 guide, APA also provides 4Q17 and 4Q18 adjusted production targets (including Permian/US/International component pieces), which imply 7-13% overall corporate BOE CAGR from 4Q16 base. Relative to MS, 4Q17/4Q16 growth is 1pp below what we had expected (though reflects \$200MM lower 2017 capex). Guidance for 4Q18 will take time for us to digest given significantly lower than expected spend. Comparison vs. Street complicated by adjustment for Egypt tax and non-controlling interest barrels which are not reflected in the latter.</p> <p>Results modestly miss. APA reports clean loss of \$-0.06/sh, weaker than Consensus earnings of \$0.07/sh and MS' \$0.17/sh estimate. CFPS was similarly weaker than Street's estimate at \$1.77</p>

Exhibit 12

Impact Date	Event
	<p>vs. \$1.97 (albeit in-line with MS). Reported production of 490Mboed was below Consensus' 503Mboed and MS' 496Mboed. The weakness compared to our expectations was spread between Canada and Egypt gas, hence had only a modest impact on financial performance. US volumes were in-line.</p> <p>Piper Jaffray wrote that the Company “reported an EPS, cash flow and production miss relative to SCI/Street for Q4, with the EPS miss “driven by lower realizations and higher costs.” The analyst commented that “[i]nvestor focus will be on '17 guidance,” which showed that the Company’s “'17 production [wa]s weaker than SCI/Street” expectations.⁴⁴</p> <p>Negative to mixed release from APA. The company reported an EPS, cash flow and production miss relative to SCI/Street for Q4. Investor focus will be on '17 guidance. APA guiding to \$3.1 B (+60% y/y) in capex which is slightly higher than the Street and below SCI. APA also providing preliminary '18 capex of \$3.2 B. For production growth, APA expects total production to increase 7-13% between Q4'16 and Q4'18. This suggests Q4'18 production at a lower level than current SCI/Street estimates, but the '18 capital spending estimate is also lower than SCI/Street. '17 production is weaker than SCI/Street with 1H'17 production declining from Q4'16 driven by a North Sea turnaround and Canada gas plant maintenance. On a positive note, APA has begun hedging oil downside through put options. We will look to the earnings conference call for more color. YTD, APA is -13% vs. our E&P coverage group -7%.</p> <p>Q4'16 EPS, Cash Flow and Production Miss: APA reported Q4'16 adjusted EPS of a loss of 6c/sh which missed SCI at \$0.13/sh and the Street at \$0.07/sh. The EPS miss relative to our expectation was driven by lower realizations and higher costs. Adjusted EBITDAX of \$878 MM was below SCI/Street at \$956/\$934 MM. Total production of 490 Mboe/d missed SCI at 513 Mboe/d and the Street at 503 Mboe/d.</p>

⁴⁴ Piper Jaffray, Simmons & Company, “Apache Corporation, Q4'16 Quick Look: '17 Production Weaker Than Expected/Provides View Through '18,” February 23, 2017, 8:47 AM.

Exhibit 12

Impact Date	Event
	<p>Capital Spending: On a positive note, Q4 capital spending was below expectations (\$563 MM vs. SCI/Street at \$640/\$581 MM). For FY'16, APA spent \$1.9 B. For FY'17, APA is guiding to \$3.1 B (+63% y/y) and for FY'18 \$3.2 B.</p> <p>Production Guidance (Part I): APA is guiding to reported production of 486-506 Mboe/ d in '17 vs. SCI at 530 Mboe/d (note: we were assuming much higher capex) and the Street at 510 Mboe/d.</p> <p>Production Guidance (Part II): APA expects 1H'17 production to decline driven by North Sea maintenance in Q2. Compared to Q4'16 pro-forma production (adjusting for Egypt tax barrels + minority interest) of 421 Mboe/d, APA expects Q2'17 production to decline to 372-384 Mboe/d and increase to 425-455 Mboe/d in Q4'17 and to 485-537 Mboe/d in Q4'18. APA guiding to 7-13% total company production growth from Q4'16 to Q4'18. Total Midland and Delaware basin production is projected to grow at an average annual rate of >50%. Oil production in the Midland and Delaware basins is projected to grow at an average annual rate of ~18%.</p> <p>Other Guidance: We are pleased and appreciate that APA has provided more detailed cost guidance (slide 30 of supplemental materials). LOE and DD&A guide is higher than our expectation.</p> <p>Piper Jaffray, in a later report, added that “APA underperformed the E&P group today by 350 bps following their Q4 earnings release and disclosure of forward guidance”:⁴⁵</p> <p>APA underperformed the E&P group today by 350 bps following their Q4 earnings release and disclosure of forward guidance. Below are some of the key takeaways from the earnings conference call.</p> <p>'17 Capital Plan Commodity Price Assumptions: APA's '17 plan is predicated on \$50 WTI, \$51 Brent, \$3.15 HHUB and \$5.25 UK gas.</p>

⁴⁵ Piper Jaffray, Simmons & Company, “Apache Corporation, Earnings Conference Call Key Takeaways,” February 23, 2017, 4:23 PM.

Exhibit 12

Impact Date	Event
	<p>NAM Base Decline Rate: ~20%.</p> <p>Suriname: APA will spud an expiration well in Suriname next week (\$37M cost net to APA). This well is in Block 53 and APA has a 45% WI.</p> <p>Egypt: APA is excited about two exploration concessions awarded in the Western Desert, the company's first award in over 10 years.</p> <p>North Sea: Dry hole at Kinord prospect. This was a high risk, high reward target. Stacked objectives, Jurassic and Triassic, in each of the two identified fault blocks. For North Sea production, APA is guiding to 1H'17 production of 55 Mboe/d (due to turnarounds) and 2H'17 of 70 Mboe/d.</p> <p>Alpine High Infrastructure: APA still anticipates having their first major gas line in place by July. Well connections and facilities commissioning will take place through the end of the year.</p> <p>Alpine High Nuggets: Mgmt believes they most likely have a 3rd landing zone in the Woodford. APA is now beginning to optimize wells using customized zone targeting, larger fracs and in some cases longer laterals. Previously, management was not driving big flow rates because they did not have the processing facilities in place. In addition, flaring rules are in place.</p> <p>Guidance Change: APA is now including legacy run off GOM production in their NAM onshore guidance (previously included in Intl).</p> <p>RBC wrote that the Company's EBITDA was short of its estimate "due to lower production, slightly lower commodity price realization." The analyst noted that the Company's adjusted EPS and cash flow were below its and consensus estimates. RBC noted that the Company's 2017 production guidance was below its estimate but the</p>

Exhibit 12

Impact Date	Event
	<p>analyst “expect[ed] the market to be more focused on the strong trajectory through 2018 that uses less capital than anticipated”:⁴⁶</p> <p>Our View: 4Q16 was light on production and 2017 has a slow start but we expect the market to be more focused on the strong trajectory through 2018 that uses less capital than anticipated.</p> <p>Apache Corporation (APA) reported 4Q16 recurring EPS/CFPS of (\$0.06)/\$1.76 compared to our \$0.10/\$2.10 and the Street consensus of \$0.06/\$2.00 estimates. EBITDA of \$878 million was below our \$1,007 million model due to lower production, slightly lower commodity price realization, and higher G&A expense. Production (excluding non-controlling & tax barrels) of 421 Mboe/d was below our 442 Mboe/d model. CAPEX of \$592 million was roughly in line with our \$595 million estimate and slightly above Street consensus of \$582 million.</p> <p>Outlook. APA provided details on production and capital spending through 2018. 2017 Capital expenditures of \$3.1 billion and production guidance of 398-415 Mboe/d (excluding tax barrels and non-controlling interests) are below our \$3.4 billion and 435 Mboe/d model. Most of the production variance to our model is in the international segment.</p> <p>The 2018 outlook assumes \$3.2 billion of capital, much lower than our \$3.9 billion expectation. Production by 4Q18 is expected to increase to 485-537 Mboe/d, above our 476 Mboe/d forecast.</p> <p>Operational Update. No additional well data points for Alpine High were provided in the corporate presentation because management provided this at a recent conference. Extended data on six Midland wells continue to look strong and three new Delaware wells had good initial production rates targeting the Bone Spring.</p> <p>RBC, in a later report, added that Apache’s “[h]eavy investment is skewed to the Permian but it could take a few quarters to see the impact.” RBC commented that the Company’s “confidence in Alpine High was demonstrated by</p>

⁴⁶ RBC Capital Markets, “APA - 4Q16 Miss; More Robust Outlook Through 2018,” February 23, 2017, 8:51 AM.

Exhibit 12

Impact Date	Event
	<p>providing a more detailed outlook that includes 4Q18 projections.” The analyst lowered its price target for the Company to \$65 from \$66 on “lower CFPS estimates due to reduced production estimates and lower oil volumes”:⁴⁷</p> <p>Our view: Heavy investment is skewed to the Permian but it could take a few quarters to see the impact. The outlook through 2018 shows better capital efficiency with an initial 2018 budget only modestly higher. We think investors will continue to take a wait-and-see approach due to the early stages and variability at APA’s major new development, Alpine High.</p> <p>Key points: Heavy capital shift focused on Permian. Management’s confidence in Alpine High was demonstrated by providing a more detailed outlook that includes 4Q18 projections. The 2017 capital budget of \$3.1 billion and production guidance of 398-415 Mboe/d (excluding tax barrels and non-controlling interests) are slightly below our expectations though mostly due to the international segment. We model the Alpine High infrastructure spending of \$500 million contributes to an outspend of \$250 million after dividends but is fully funded by non-core asset sales that were already completed.</p> <p>Alpine High growth outlook is robust although quite gassy. Midland/ Delaware production is expected to grow at a CAGR of 50%+ through 4Q18. The oil CAGR of 14-21% suggests a heavy wet gas composition. Ultimately, returns are what will matter. Key potential catalysts are 1) successful shallower target interval tests to confirm potentially oilier intervals. We think this could boost the long-term oil production growth outlook. 2) Optimized well results to confirm typecurves. The Spruce State 1H was the company’s first long lateral optimization test and had a strong initial rate though it was drilled in the dry gas Barnett. Results on three additional optimization tests are expected soon. 3) Inventory additions from successful multi-zone delineation. The company has already confirmed a second landing zone in the Woodford and a third is likely. Only one landing zone was included in the current inventory of 2,000-3,000+ locations.</p>

⁴⁷ RBC Capital Markets, “Apache Corporation, Alpine High Impact Should Be Felt by 3Q17,” February 23, 2017, 8:10 PM.

Exhibit 12

Impact Date	Event
	<p>Additional Delaware results build on recent strong performance in the Midland. An upcoming six-well pad at Powell and nine-well pad at Azalea are anticipated to be drilled with extended laterals and should further support the recent outperformance. The Blue Jay Unit 102H and 101H targeted the Third Bone Spring in the Delaware and had strong initial rates but did not match the prolific Blue Jay 103H announced last year, APA's most productive well to date in the Delaware.</p> <p>We have lowered our target price by \$1/share to \$65/share. The reduction reflects our lower CFPS estimates due to reduced production estimates and lower oil volumes.</p> <p>APA reported 4Q16 recurring EPS/CFPS of (\$0.06)/\$1.76, below our \$0.10/\$2.10 estimates. Production (excluding non-controlling & tax barrels) of 421 Mboe/d was below our 442 Mboe/d model.</p> <p>Societe Generale wrote that the Company's adjusted EPS and cash flow were below its and consensus expectations. The analyst commented that Apache's "[p]roduction growth in 2017 will be back-end" loaded. The analyst thought the "Street will likely focus on reduced YOY adjusted output of 406.5 MBOE/d (midpoint), down 3.4% from the 4Q16 average".⁴⁸</p> <p>4Q16: Adjusted EPS/DCFPS (discretionary cash flow per share after dividends) were \$(0.06)/\$1.44 vs. SGE of \$0.06/\$1.65 and Street of \$0.07/\$1.75. Reported EPS was \$(0.48) and included impairments and valuation/tax adjustments and minor re-org costs. The adjusted EPS/DCFPS differential was related to higher net taxes than we had modelled. Adjusted output of 420.8 MBOE/d (sans non-controlling Egypt stake) was down 4% QOQ (about 42% Ngls, 33% oil and 25% natural gas) and 14% YOY was about ½ domestic and ½ international given reduced reinvestment and minor asset sales. Cap-ex in 4Q16 of \$537MM was less than DCF of \$572MM (after dividends). At YE16, APA had \$1.4 billion in cash (\$3.62/share) in cash and</p>

⁴⁸ Societe Generale, "Apache Corp, 4Q16 Adj. EPS miss a non-event. 2017 cap-ex + 63% to \$3.1 billion. Growth in 2H. Only Large Cap FCF+ in '16," February 23, 2017, 10:57 AM.

Exhibit 12

Impact Date	Event
	<p>\$3.5 billion in committed and undrawn bank credit lines for \$5 billion in total, and LTD/Book Capitalization of 58%.</p> <p>2016: Adjusted EPS/DCFPS (discretionary cash flow per share after dividends) of \$(1.13)/\$7.10 were lower than \$(0.21)/\$7.83 in 2015 given lower production based cash flow from lower volumes (-7% with adjusted BOE/d of 485.6 MBOE/d) and product pricing (-11%) and, in our opinion, were admirable given the 58% decline in YOY cap-ex. Like peers, APA did more with less, and reduced YOY LOE 16%, increased Permian well productivity and operated effectively abroad with free cash flow generating assets. More importantly, APA was the only US Large Cap to deliver free cash flow while underspending their projected budget and announcing a new organic shale play, the Alpine High. APA added 2nd half hedges for oil and natural gas. Proven reserves YOY declined 16.1%, and had unrevised “All Sources Finding costs” of \$40.55/BOE. More importantly, they reduced PUDs of 10.5% vs. 15% in 2015.</p> <p>2017: Projected cap-ex of \$3.1 billion is 63% above 2016 with 2/3rds committed to the Permian basin and \$500MM for Alpine High GTP. The \$3.1B global total expenditure will be above cash flow by \$400MM, and that deficit can be met from cash on hand or incoming asset sales proceeds already received. Production growth in 2017 will be back-end as a consequence of field maintenance in the North Sea and Canada in 1H17 and lower volumes associated with reduced 2016 cap-ex. But, long term 10% growth through 2018 corporately, and in the Permian (50% overall and 17% oil), and should matter because APA plans on cash flow neutrality.</p> <p>SG view: The Street will likely focus on reduced YOY adjusted output of 406.5 MBOE/d (midpoint), down 3.4% from the 4Q16 average, and ‘may sell the news’. We think that is would be premature. By management plan, APA was the only US Large Cap E&P to not outspend 2016 cash flow materially or dilute the shareholder. We realize that the Alpine High is still not fully embraced by the Street, but we expect that market scepticism to wane when APA finally gets to discuss full scale rather than test well results. Their targeted 14%-21% CAGR oil growth rate in the Permian, in our opinion, remains competitive. Many E&Ps transformed their operations during the recent product price malaise via acquisition, but APA has taken an organic approach, which we think will prove differential.</p>

Exhibit 12

Impact Date	Event
	<p>UBS wrote that the Company’s adjusted EPS was “worse” than its estimate and consensus, EBITDX was “near expectations,” and production was lower than its estimates and consensus. The analyst commented that the Company’s “2017 production guidance well below expectations,” with most growth coming from gas. UBS noted that Apache “expect[ed] to outspend cash flow [in 2017], plugging the gap primarily from non-core asset sales” while 2018 capex guidance was “well below consensus & prior UBSe”.⁴⁹</p> <p>2017 budget just above consensus but 2018 capex below expectations APA guided to 2017 capex of \$3.1bn, up >60% YoY and just above consensus’ ~\$3.0bn & prior UBSe of ~\$2.9bn. It expects to outspend cash flow this year, plugging the gap primarily from non-core asset sales (>\$400MM received in 1Q17). APA is allocating ~65% of its 2017 budget (\$2bn) to the Permian Basin, of which \$500MM is for Alpine High midstream infrastructure. Meanwhile, ~29% of its capex (~\$900MM) will go to Egypt & North Sea. APA also provided a preliminary 2018 capex budget of \$3.2bn, well below consensus & prior UBSe of ~\$3.7bn & ~\$3.6bn, respectively. At current strip, we forecast a cumulative 2017-18 FCF deficit (after divi) of ~\$1.2bn.</p> <p>2017 production guidance well below expectations & LT growth is gassy APA’s 2017 volume guidance (including Egyptian tax barrels) of 486-506 MBoed, down ~3-7% YoY and well below consensus of ~514 MBoed & prior UBSe of ~525 MBoed. North American production (including ~8 MBoed from GoM) is expected to decline ~7- 11% YoY to 252-263 MBoed (albeit roughly flat with 4Q16 levels as sequential growth resumes in 2H17), with International volumes roughly flat YoY at 234-243 MBoed (before Egypt tax barrels). APA expects companywide production to grow at a 7-13% CAGR from 4Q16 to 4Q18, with volumes (before Egypt tax barrels) reaching 515-545 MBoed in 4Q17 (vs. consensus’ ~530 MBoed) & 575-627 MBoed in 4Q18 (vs. consensus’ ~589 MBoed). And while this growth will be driven entirely by a >50% CAGR from its Permian Basin position, its oil volumes from the Permian are expected to grow just 17 MBbld (modest vs. 110 MBoed companywide growth over 4Q16-4Q18).</p>

⁴⁹ UBS, “Apache Corporation, 4Q EPS and Production Miss; 2017 Production & Capex Guidance Disappoints,” February 23, 2017.

Exhibit 12

Impact Date	Event
	<p>4Q EPS misses on higher exploration expense but EBITDX roughly in line 4Q clean EPS (loss) of (\$0.06) was worse than consensus' \$0.07 & UBSe \$0.05, but adjusted EBITDX rose 70% YoY to \$929MM (near expectations). Production fell 1% YoY to 490.4 MBoed, 4% below UBSe 512.4 MBoed and 3% below consensus of ~505 MBoed. Price realizations rose 21% YoY to \$5.43, in line with UBSe. Unit costs fell 8% YoY to \$5.42/Boe, 5% above UBSe although exploration cost of \$0.47/Boe was 55% above UBSe \$0.30/Boe. We will revisit our estimates post conference call.</p> <p>Valuation: roughly in line with peers on EV/DACF and P/NAV Our \$59 target assumes 6.1x normalized 2018E DACF, in line with peer avg.</p> <p>UBS, in a later report, lowered its price target for the Company to \$55 from \$59, which “assumes 6.6x normalized 2018E DACF, in line with peers’ target avg.”:⁵⁰</p> <p>2017 budget just above consensus but 2018 capex below expectations APA guided to 2017 capex of \$3.1bn, up >60% YoY and just above consensus' ~\$3.0bn & prior UBSe of ~\$2.9bn. It expects to outspend cash flow this year, plugging the gap primarily from non-core asset sales (>\$400MM received in 1Q17), while hedging its 2H17 oil prod'n with put options at ~\$50/Bbl. APA is allocating ~65% of its 2017 budget (\$2bn) to the Permian, including \$500MM for Alpine High midstream infrastructure. Meanwhile, ~29% of its capex (~\$900MM) will go to Egypt & North Sea. APA also provided preliminary 2018 capex of \$3.2bn, well below expectations for ~\$3.7bn. At strip, we forecast a cumulative 2017-18 FCF deficit (after divi) of ~\$1.6bn.</p> <p>2017 production guidance well below expectations & LT growth is gassy APA's 2017 volume guidance (including Egypt tax barrels) of 486-506 MBoed, down ~3-7% YoY and below consensus of ~514 MBoed. North American production is expected to decline ~7-11% YoY to 252-263 MBoed (roughly flat with 4Q16 levels as growth resumes in 2H17),</p>

⁵⁰ UBS, “Apache Corporation, 4Q EPS and Production Miss; 2017 Production & Capex Guidance Disappoints,” February 24, 2017.

Exhibit 12

Impact Date	Event
	<p>with International volumes flattish YoY at 234-243 MBoed (before Egypt tax barrels). APA expects total production to grow 7-13% CAGR from 4Q16 to 4Q18, with volumes (incl. Egypt tax barrels) reaching 515-545 MBoed in 4Q17 (vs. consensus ~530 MBoed) & 575-627 MBoed in 4Q18 (vs. consensus~589 MBoed) driven by a >50% CAGR from Permian. But Permian oil volumes are expected to grow just 17 MBbld (vs. 110 MBoed companywide growth over 4Q16-4Q18). We lowered our 2017E production by 5% to 499 MBoed & trimmed 2018E to 565 MBoed, reducing 2017-18 CFPS by 6% and 3%, respectively.</p> <p>4Q EPS misses on higher exploration expense but EBITDX roughly in line 4Q clean EPS (loss) of (\$0.06) was worse than consensus' \$0.07 and UBSe \$0.05, but adjusted EBITDX rose 70% YoY to \$929MM (near expectations). Production fell 1% YoY to 490.4 MBoed, 4% below UBSe and 3% below consensus. Price realizations rose 21% YoY to \$5.43, in line with UBSe. Unit costs fell 8% YoY to \$5.42/Boe, 5% above UBSe although exploration cost of \$0.47/Boe was 55% above UBSe \$0.30/Boe.</p> <p>Valuation: in line with peers on EV/DACF and price/NAV \$55 PT (was \$59) assumes 6.6x normalized 2018E DACF, in line with peers' target avg.</p> <p>Wells Fargo had a “Negative” reaction to the Company’s announcement as adjusted EPS missed its and consensus estimates, “[w]hile spending came in better than expected, pro forma volumes [were] expected to slide 9% in 2017 compared to our/Street estimate of a 2%/3% decline.” The analyst commented that the Company’s “CAGR from 2016-2018 should be about 3% which likely underwhelms relative to Street expectations”:⁵¹</p> <p>Takeaway: Negative. While spending came in better than expected, pro forma volumes expected to slide 9% in 2017 compared to our/Street estimate of a 2%/3% decline. Color on 2018 implies good 4Q/4Q growth, although full-year numbers show more moderate growth. Overall, CAGR from 2016-2018 should be about 3% which likely underwhelms relative to Street expectations.</p> <p>Key Points</p>

⁵¹ Wells Fargo, “Apache Corporation, APA: Moderate Growth Outlook,” February 23, 2017.

Exhibit 12

Impact Date	Event
	<p>Light Production (pro forma). Total of 421 Mboe/d vs. our 425 Mboe/d. Crude coming in at 214 Mbbl/d which was inline with our estimate of 215 Mbbl/d (we modeled 76 Mbbl/d in Permian vs. actual 78 Mbbl/d). Gas at 899 MMcf/d below our 922 MMcf/d. NGLs were 57 Mbbls/d which is where we modeled.</p> <p>Guidance Established. 2017 budget set at \$3.1B more than 60% of which will be allocated to Permian. Production outlook assumes a 7-13% CAGR from 4Q16 to 4Q18, but 2017 pro forma volumes expected to be 407 Mboe/d representing a 9% decline well short of our 444 Mboe/d estimate. Using 4Q18 midpoint, we back into roughly 476 Mboe/d full-year 2018 which implies a 3% CAGR from 2016-2018. On positive side, 2018 spending guidance at \$3.2B well below current Street estimates of \$3.7B. International portfolio expected to decline on \$900MM with growth driven out of North America (Permian) in 2017.</p> <p>Operations/Other. Permian: Solid 30day results from Wildfire (Midland) and 3rd Bone Spring (Loving); Street focus will next turn to Alpine High wells from oil window (Wolfcamp, Penn). Alpine High connections still scheduled for 2H17. 2017: 5+ rigs in Midland, 4-6 rigs in Delaware/Alpine High. International volumes “flattish” 2017, 2018. Egypt: Callater online 3Q17.</p> <p>Reserves Down 16%. Reserves at 1.3 Bboe compared to 1.6 last year representing driven by pricing. Proved developed at 90% compared to 85% last year.</p> <p>EPS Miss. Adj. EPS of -\$0.06 missed compared to our \$0.03 and Street’s \$0.07.</p> <p>Conference Call Focus: Alpine High results, international outlook, exploration opportunities. Details: Thursday (2/23), 2:00pm ET. 8888301024 #48376856.</p> <p>Wolfe wrote that the Company’s capex guidance, which “w[ould] exceed planned cash flow from operations ... [was n]ot a recipe for E&P outperformance today.” The analyst “d[id] not see the [Company’s] situation improving much in 2018 with oil prices in the mid-\$50/bbl range, as spending blazes up to meet Apache’s 2018 growth target.”</p>

Exhibit 12

Impact Date	Event
	<p>Wolfe “also d[id] not expect the short-memory market to trust the Alpine High until well results start lining up with expectations rather than theories of what tomorrow brings”:⁵²</p> <p>“This level of investment will exceed planned cash flow from operations...” Not a recipe for E&P outperformance today, and it immediately followed Apache’s 4Q16 release of \$3.1Bn 2017 capital budget outlook this morning (we bake in ~\$2.8Bn of operating cash flow at strip netting out \$420Mn of distributions to Sinopec/Egypt less another ~\$380Mn of dividend payments, for ~\$600Mn of outspend). The hits keep coming - we do not see the situation improving much in 2018 with oil prices in the mid-\$50/bbl range, as spending blazes up to meet Apache’s 2018 growth target. We are modeling \$3.4Bn capex (which assumes some sequential decline in Alpine High D&C as efficiencies are realized in the emerging play) vs. \$3.2Bn of operating cash. The reasonable opportunity for repeatable, stacked inventory with improving productivity / economics keeps us from getting too bearish, but we also do not expect the short-memory market to trust the Alpine High until well results start lining up with expectations rather than theories of what tomorrow brings. Peer Perform.</p> <p>Blazing Alpine High flow rates constrained by (lack of) processing infrastructure – We took this commentary as a net positive. As others, we thought the latest batch of Alpine High well results showed disappointing IP rates, but management countered by stating that drilling longer laterals with bigger fracs at this point is not an optimal use of capital given flaring rules and lack of processing infrastructure. Instead the focus will be on additional appraisal and data gathering, (with the company adding a second frac crew to the play for this purpose) at least until gas lines and gathering facilities are online mid-year. The problem for the stock is that until that point, operational catalysts out of the company’s most significant value driver will be constrained.</p> <p>Midland has been a bright spot – Midland Basin productivity has been on an upward trend and recent wells have been exceeding 1Mboe type curves. Management confirmed that most wells going forward will be drilled with 1.5 – 2.0 mile laterals, with a lot of work having been done on acreage swaps over the past couple years to square up the acreage position. The underlying issue</p>

⁵² Wolfe Research, “Apache Corp., I was free cash... but then I got totally Alpine high,” February 23, 2017.

Exhibit 12

Impact Date	Event
	<p>though is that rolling the Midland position is not in a position to scale (at least not scale to the extent of the Alpine High). So longer-term, the driver on overall capital efficiency will largely be contingent on the success of the Alpine drilling program. And at this point visibility on productivity of individual wells, longer-term infrastructure demands, and the ability to successfully market both dry gas and NGL volumes remains limited. We sense too much uncertainty to get bullish even with the underperformance today, to get too excited.</p> <p>Investment Conclusion – We rate Apache Peer Perform with fair value in the mid-\$50 range. We think there is significant resource potential in the Alpine High but there is simply too much uncertainty associated with the emerging play at this point – (1) lack of visibility on well productivities as flow rates have been heavily constrained given lack of infrastructure, (2) infrastructure demands going forward (in addition to the \$500Mn to be spent annually over the next two years for initial G&P demands, (3) ability to market significant volumes of dry gas and NGLs at market rates. Our fair value is based on \$61 NAV and 5.0x mid-cycle EBITDAX of \$5.5Bn.</p> <p>News coverage attributed the decrease in the Company’s stock price on February 23, 2017 to its earnings announcement.⁵³</p> <p>Following the Company’s disclosures on February 23, 2017, according to Bloomberg, the average of analysts’ price targets for Apache stock decreased to \$64.68 from \$65.55, or -1.33%. All 35 analysts who published investment ratings for the Company both before and after the earnings announcement maintained their ratings. (See Exhibit 5C.)</p>

⁵³ See, e.g., *Bloomberg News*, “Apache Shares Slide After Driller Reports Unexpected Loss,” February 23, 2017, 12:39 AM; *Seeking Alpha*, “Apache -4% after posting wide Q4 miss,” February 23, 2017, 2:19 PM; *SNL Financial Extra*, “Apache places its faith, and money, in the Permian,” February 24, 2017.

Exhibit 12

Impact Date	Event
	Remark: Given that: (i) “Apache’s earnings and EBITDA were lower than expectations due to lower liquids volumes and price realizations than expected”; ⁵⁴ and (ii) the Company provided a “much weaker than anticipated outlook for 2017 volumes and cash flows,” ⁵⁵ the statistically significant Company-specific stock price decline on February 23, 2017 is consistent with that expected in an efficient market.
5/4/2017	<p>Before market open on Thursday, May 4, 2017, the Company announced its first-quarter 2017 financial results. For the quarter, Apache reported production of 481 mboe/d, revenue of \$1.51 billion, EPS of \$0.56, and adjusted EPS of \$0.08.⁵⁶</p> <p>The consensus estimates of the Company’s quarterly revenue and adjusted EPS were \$1.53 billion and \$0.13, respectively.⁵⁷</p> <p>John J. Christmann IV, Apache’s chief executive officer and president, commented on the Company’s results and increased production guidance:⁵⁸</p>

⁵⁴ Barclays, “Apache Corp., APA Offers Outlook Through 2018,” February 23, 2017, 9:36 AM. *See also, e.g.*, BMO Capital Markets, “Apache, 4Q16 and 2017 Production Lower; Alpine High Boosts YE18 Volumes,” February 23, 2017, 8:51 AM; Evercore ISI, “Apache, Turning to Growth, Plenty of Questions,” February 23, 2017, 12:49 PM; Piper Jaffray, Simmons & Company, “Apache Corporation, Q4’16 Quick Look: ’17 Production Weaker Than Expected/Provides View Through ’18,” February 23, 2017, 8:47 AM.

⁵⁵ JP Morgan, “Apache Corp, 4Q16 Flash: 2017 CFO Shortfall Versus Expectations Likely to Weigh on Shares Despite Higher 2018 Volume Guide - ALERT,” February 23, 2017, 9:42 AM. *See also, e.g.*, Cowen and Company, “Apache Corporation, 4Q16 Earnings at a Glance,” February 23, 2017; Morgan Stanley, “Apache Corp., 4Q16: Light Quarter and 2017 Guide,” February 23, 2017, 9:53 AM; Wells Fargo, “Apache Corporation, APA: Moderate Growth Outlook,” February 23, 2017.

⁵⁶ Apache News Release, “Apache Corporation announces first-quarter 2017 financial and operational results,” May 4, 2017. *See also* *GlobeNewswire*, “Apache Corporation Releases First Quarter 2017 Financial and Operational Results,” May 4, 2017, 8:00 AM.

⁵⁷ *TheFlyontheWall.com*, “08:08 EDT Apache reports Q1 adjusted EPS 5c, consensus 13cReports Q1 oil and gas...,” May 4, 2017, 8:08 AM.

⁵⁸ Apache News Release, “Apache Corporation announces first-quarter 2017 financial and operational results,” May 4, 2017.

Exhibit 12

Impact Date	Event
	<p>During the first quarter, we delivered strong results and made notable progress toward our 2017 strategic objectives. Earlier this year, we outlined a plan to deliver returns-focused growth by budgeting conservatively, investing to sustain free cash flow internationally, and increasing investment in the Midland and Delaware basins. We are maintaining a razor-sharp focus on costs and well optimization and actively managing our portfolio.</p> <p>During the quarter, we continued ramping up activity in our core Midland Basin acreage and are beginning to see significant cost benefits associated with our development drilling in the area. We are looking forward to the growing contribution these assets will have in the quarters to come.</p> <p>At Alpine High, testing and delineation have continued with strong results that reinforce our confidence in this world-class resource play. In today's financial and operational supplement, we included three new test wells, two of which delivered our highest 24-hour oil rates and highest oil cuts to date in the Woodford and the Barnett formations.</p> <p>We also made excellent progress on our midstream buildout and initiated production from the play two months ahead of schedule. This has enabled us to raise our North American production guidance to 256,000 to 264,000 Boe per day for the full-year, and, more importantly, gives us the facilities to transition to a more optimized program.</p> <p>Optimization activities in the Woodford, Barnett and Pennsylvanian source interval include well spacing and pattern tests, targeted wellbore placement, enhanced completion designs and, in some cases, longer laterals. Our enhanced completions will feature larger fracs with more stages, more fluid and higher sand concentrations. Following extensive, integrated analysis, we are also conducting an appraisal program in the Wolfcamp and Bone Spring parasequences. Information collected from this program, coupled with the extensive knowledge we have gained from our thorough evaluation of the source interval, will inform the buildout of a comprehensive, long-term, full-field development plan.</p>

Exhibit 12

Impact Date	Event		
	In addition, Apache provided updated 2017 guidance: ⁵⁹		
	<u>Daily Production (mboe/d)</u>	<u>Previous</u>	<u>Updated</u>
	<u>Reported Production</u>		
	North America	252 - 263	256 - 264
	International	234 - 243	229 - 239
	Total Production	486 - 506	485 - 503
	<u>Adjusted Production</u>		
	North America	252 - 263	256 - 264
	International (as reported)	234 - 243	229 - 239
	Less: Egypt Tax Barrels	45 - 46	40 - 42
	Less: Egypt Noncontrolling Interest	43 - 45	43 - 45
	Total Adjusted Production	398 - 415	402 - 416
	<u>Other Income Statement Items</u>		
	<u>Operating Costs</u>		
	Lease Operating Expenses (per BOE)	\$8.50 - \$9.00	\$8.25 - \$8.75
	Christmann commented on the Company's guidance: ⁶⁰		
	We have responded well to the challenges facing the industry over the last two years, successfully realigning our cost structure to ensure profitability at \$50 oil, streamlining our asset base and significantly improving our capital efficiency, well performance and organic growth prospects. We are now well positioned to deliver returns-focused growth, with our first quarter results indicating solid progress toward our objectives.		

⁵⁹ Apache News Release, "Apache, First-Quarter 2017, Financial and Operational Supplement," May 4, 2017.

⁶⁰ Apache News Release, "Apache Corporation announces first-quarter 2017 financial and operational results," May 4, 2017.

Exhibit 12

Impact Date	Event
	<p>The Company held a conference call with investment analysts the same day.⁶¹</p> <p>Bank of America Merrill Lynch wrote that the Company’s adjusted EPS missed its estimate and consensus but adjusted EBITDAX was ahead of consensus, cash flow was “inline,” and production “matched consensus.” The analyst commented that the Company’s “FY17 guidance [wa]s lifted slightly” and “[c]ost controls look positive”:⁶²</p> <p>Earnings miss on tax Adjusted EPS of \$0.08 missed consensus of \$0.14 and BofA ML of \$0.23. We see the primary variance on 10c of dry hole expense and tax that otherwise left adjusted EBITDAX of \$999mm ahead of consensus (\$911mm). Cash flow of \$730mm was inline compared to consensus of \$723mm. Production of 481mboed matched consensus of 480mboed. Production from North America was 252mboed – as a result of Alpine Midstream moving ahead of schedule and achieving first gas on May 3rd, FY17 guidance is lifted slightly from 257.5mboed to 260mboed at the mid-point. Cost controls look positive. Capex is trending toward \$3.1bn target, while opex guidance reduced slightly to \$8.25-8.75/boe. Apache sees its cost structure enabling profitability at \$50 oil.</p> <p>Positive Alpine update, but disclosure remains selective In North America APA is carrying 16 rigs, 13 of which are deployed in the Permian Basin. Six were active in the Alpine High that continues to move through appraisal and early optimization with 3 wells announced this quarter. Chinook (Woodford) and Blackhawk (Barnett) were drilled in the core of APA activity with the former yielding the best oil rate thus far with 620bb/d of light oil (51 API) in addition to 8.5mmcf/d of liquids rich gas. Blackhawk is the latest Barnett well – with the best oil rate of the three wells at 742 bopd disclosed to date but confirming a high degree of variability across the play. The 3rd well, the King Hildago 3H was drilled on an</p>

⁶¹ Thomson Reuters, *StreetEvents*, “APA – Q1 2017 Apache Corp Earnings Call, EVENT DATE/TIME: MAY 4, 2017 / 6:00PM GMT,” May 4, 2017, 2:00 PM.

⁶² Bank of America Merrill Lynch, “Apache Corp, 1Q17 First look: EPS miss, Alpine High in focus but with limited new well data,” May 4, 2017, 12:41 PM.

Exhibit 12

Impact Date	Event
	<p>optimized azimuth within the landing zone that delivered a 2x stronger result relative to the Feb 2016 offset at 6.9mmcf/d of liquids rich gas – doubling production versus previous tests. However versus the relatively high levels of drilling, activity establishing repeatability requires more consistent disclosure in order to fully vet the cashflow impact of a prospective change in gas mix for APA over time.</p> <p>Other operating updates: Midland and International Apache is running 6 rigs in the Midland Basin, where activity is focused on pad drilling in the Wolfcamp. The 6 well Connell pad was brought online with an avg IP30 of 850boepd (79% oil) on a single mile well design. Costs remain under \$5.0mm per well but adjusted for lateral length look light versus peers. Note total Permian Basin production of 146.5mboe/d was down from 168.9mboe/d with a gas mix of 26% vs 23%. Ex US, APA is running 14 rigs between the UK and Egypt. Total production of 228.8mboed was slightly below our estimate of 235mmboepd due to lower North Sea, leaving gross Egypt inline at 170mboed. Adjusted for tax barrels however, we see a miss of 6mboe/d. Capital spending, including APA's 33% non-controlling interest at \$88mm looks light versus FY guidance of \$650mm. To avoid a reduction in entitlement effects, we believe spending will need to ramp to hold Egypt production flat</p> <p>Maintain Underperform We maintain our Underperform rating on APA given uncertainty around the scale, timing and cashflow impact of accelerating gas production. While incremental disclosure is welcomed, we believe better relative value exists amongst oil growth names. Conference call at 3 PM ET Dial-in: 888.830.1024; Pin: 48380128.</p> <p>Barclays expected that “[f]undamental investors should have a neutral to positive reaction to Apache’s 1Q 17 earnings and operational update.” The analyst commented the Company’s adjusted EPS was below its estimate and consensus but adjusted EBITDA beat its forecast and “[v]olumes were largely in line with expectations.” Barclays</p>

Exhibit 12

Impact Date	Event
	<p>noted that “Apache is raising 2017 North America production guidance as Alpine High first gas sales came two months ahead of schedule” and “[t]he company’s outlook for 2018 remains intact”:⁶³</p> <p>Fundamental investors should have a neutral to positive reaction to Apache’s 1Q 17 earnings and operational update. APA is raising its North America production guidance under the same budget as Alpine High is ahead of schedule. The company reiterated its international and broader 2018 outlook.</p> <p>Apache is raising 2017 North America production guidance as Alpine High first gas sales came two months ahead of schedule. The company’s outlook for 2018 remains intact. Budget is on track for original guidance. APA is raising the midpoint of 2017 North America guidance by 2.5 mbpd to 260 mboepd. The company achieved first gas sales at Alpine High from its northern pipeline connection yesterday, May 3rd, two months ahead of schedule.</p> <p>International production guidance remains unchanged. APA expects to invest in Egypt and North Sea to deliver relatively flat volumes and free cash flow. In the North Sea, Callater is on schedule for production in 3Q17 and is under budget. During the first quarter, Apache ran 11 rigs in Egypt and 3 North Sea rigs - two flatform rigs (one at Forties and one at Beryl) and one semi-submersible rig.</p> <p>APA released three new test wells in Alpine High, with the highest oil yields to date in the Woodford and Barnett based on 24- hour IP rates. Alpine High has generally been gassier than initially expected when its discovery was announced in September 2016. Based on Apache guidance, Alpine is expected to drive its oil composition of total US onshore volumes down from 45% to about one-third over the next two years.</p>

⁶³ Barclays, “Apache Corp., APA Raises 2017 North America Production Guidance As Alpine High Comes Ahead of Schedule. 2018 Outlook Unchanged,” May 4, 2017, 10:10 AM.

Exhibit 12

Impact Date	Event
	<p>Lease operating expenses were reported lower than expected. Full-year guidance has been reduced. APA now expects lease operating costs of \$8.25-8.75/boe compared to its prior guidance of \$8.50-8.75/boe.</p> <p>APA closed \$466 million of non-core asset sales during the quarter. Net debt decreased by \$200 million to just under \$7 billion. The company closed two non-core Permian asset sales for \$440 million and a separate transaction for \$26 million. Divested volumes totaled 1.1 mboepd. APA stated that it continues to evaluate its portfolio to further streamline its asset base and redeploy capital into primary growth areas in North America.</p> <p>Apache reported “Clean” EPS of \$0.08, below our estimate of \$0.15 and consensus of \$0.13. Apache’s adjusted EBITDA of \$999 million was 6% higher than our forecast. Volumes were largely in line with expectations. Liquids price realizations were reported higher, with particularly strong NGL realizations (14% higher than our forecast). Gas realizations were lower, and costs were mixed relative to expectations with 9% lower lease operating expenses than expected.</p> <p>Adjusted net income of \$213 million primarily included the following after-tax items: 1) \$222 million gain on divestitures, 2) \$31 million of valuation allowance and other tax adjustments, 3) \$15 million of transaction, reorganization and separation costs, 4) \$7 million of contract termination charges, and 5) \$1 million of loss on extinguishment of debt.</p> <p>BMO wrote that the Company “reported a mostly in-line 1Q, while first gas sales at Alpine High is two months ahead of schedule, resulting in an increase to 2017 production guidance.” The analyst noted that the Company’s first quarter adjusted EPS was below its estimate and consensus, but production was “in line” with consensus.⁶⁴</p> <p>Bottom Line: Apache reported a mostly in-line 1Q, while first gas sales at Alpine High is two months ahead of schedule, resulting in an increase to 2017 production guidance. Apache</p>

⁶⁴ BMO Capital Markets, “Apache, 1Q in Line; Alpine High Ahead of Schedule, Well Results Improve,” May 4, 2017, 8:56 AM.

Exhibit 12

Impact Date	Event
	<p>released three new Alpine High well results, two of which showed notable improvements in IP rate and oil mix, versus the prior 16-well average.</p> <p>Key Points 1Q Production in Line. Apache reported 1Q17 EPS of \$0.08, below our/consensus \$0.26/0.14. EBITDAX of \$999mm was below our \$1,007mm, but above consensus of \$911mm. GAAP production of 481MBoe/d was in line with consensus of 480MBoe/d, but below us on North Sea maintenance, while Permian/Egypt was in line with our model. Oil of 254MBo/d was slightly below consensus of 256MBo/d. Consolidated capex of \$704mm was below our \$824mm and consensus \$723mm, while the full-year budget was unchanged (LOE was trimmed). Production guidance for 2Q17 (376-386MBoe/d vs. our 380MBoe/d) and 4Q17 (429-455MBoe/d vs. our 453MBoe/d) was raised, while initiated 3Q17 guidance was below our estimate (404-424MBoe/d vs. our 444MBoe/d).</p> <p>Alpine High First Sales Ahead of Schedule. Full-year production guidance moved slightly higher on first sales at Alpine High, being two months ahead of schedule, partially offset by tax barrels (no cash flow impact). Apache now plans to transition a portion of Alpine High to pad drilling and frac optimization. Three new well results were released, which is fewer than we would have expected, with 6 wells flowing back/testing and 10 wells drilling/completing/awaiting completion at Apache's most recent late March update. That said, these three wells showed improvement, with the Chinook 101AH (Woodford) achieving a two-stream 24HR IP of 2,037Boe/d (30% oil), while the Blackhawk 5H (Barnett) was 1,625Boe/d (46% oil). On a 16:1/FT basis, these two wells averaged 246Boe/d, well above the 153Boe/d average of the prior 16 well results. The King Hidalgo 3H well (Middle Woodford) reported a 1,231Boe/d IP (6% oil). While a lower rate, this was a meaningful improvement to the King Hidalgo 9H (237Boe/d; 4% oil), and was drilled on the southern end of Alpine High. Bottom line, a nice improvement in well performance, but we think more data, consistency, and production is needed.</p> <p>Cowen viewed the Company's announcement as "Neutral" and wrote that the Company's "1Q17 production [was] relatively in-line with expectations." The analyst commented that "APA made slight upward adjustments to</p>

Exhibit 12

Impact Date	Event
	<p>production guidance for 2017 since delivery of first gas at Alpine High was ahead of schedule” but “d[id]n’t expect [Alpine High’s new wells] to change investor opinion on area”.⁶⁵</p> <p>Neutral. 1Q17 production in-line with 2Q17 and full year 2017 guidance increase on Alpine High midstream starting up early. No change to 2018 guidance. Alpine High new wells better than prior wells but we don’t expect them to change investor opinion on area.</p> <p>Stock Thoughts 1Q17 production relatively in-line with expectations. Delivery of first gas at Alpine High was 2 months ahead of schedule, moving midpoint of 2Q17 and 4Q17 guidance upwards. 1Q17 LOE was strong and guidance has been lowered for the year. APA reported 3 new wells at Alpine High; the new wells, while better, still show limited oil flows in our view.</p> <p>What to Expect on the Call Alpine High: APA announced 3 new test wells in Alpine High. Chinook 101AH achieved highest oil yield to date in Woodford, with estimated 24 hr IP rate of ~2,500 boe (51% liquids). Blackhawk 5H achieved highest oil yield to date in Barnett with estimated 24 hr IP rate of ~1,800 boe (57% liquids). King Hidalgo 3H achieved over 2x rate with optimized azimuth and 30% longer lateral. The company states that this indicates favorable thermal maturity window for liquids and oil production over southern half of acreage. Additionally, APA achieved first gas sales at Alpine High from northern pipeline connection on May 3rd, 2 months ahead of schedule.</p> <p>Optimization Activities: Optimization activities in the Woodford, Barnett and Pennsylvanian source interval include well spacing and pattern tests, targeted wellbore placement, enhanced completion designs, and longer laterals. APA’s enhanced completions will feature larger fracs with more stages, more fluid, and higher sand concentrations. The company is also conducting an appraisal program in the Wolfcamp and Bone Spring. We expect more details as APA moves towards a long-term, full-field development plan.</p>

⁶⁵ Cowen and Company, “Apache Corporation, 1Q17 Earnings at a Glance,” May 4, 2017.

Exhibit 12

Impact Date	Event
	<p>Guidance: 1Q17 benefited from lower than expected LOE and the company is reducing FY17 LOE guidance since it continues to track below plan. APA made slight upward adjustments to production guidance for 2017 since delivery of first gas at Alpine High was ahead of schedule, but 4Q18 guidance remains intact.</p> <p>Guidance Highlights LOE is tracking below plan and APA is reducing FY17 LOE guidance range to \$8.25 - \$8.75/boe (vs \$8.50 - \$9.00/boe previously).</p> <p>APA is updating its FY17 North America production guidance to 256 - 264 Mboe/d (vs 252 - 263 Mboe/d previously).</p> <p>Credit Suisse wrote that “[i]nvestors remain skeptical on Alpine High because there is not enough long-time well data.” The analyst “increased slightly” its 2017 and 2018 EPS estimates for the Company “after updating the production model”.⁶⁶</p> <p>Bottom Line: Investors remain skeptical on Alpine High because there is not enough long-time well data. We show the test data from the Alpine High play can match recent Midland wells. Yes – can match recent Midland wells. The gas-oil ratios (GOR) will rise over time and lower the revenue per lateral foot. However, these wells are un-optimized and the wells are cheap to drill and the wet gas zone will deliver an economic return. The waiting game will continue probably until 2Q results in August (or Bar cap in September) by which time APA may have unleashed some optimized wet-gas beasts. In the meantime, the market also awaits oilier wells from the Penn, Wolfcamp or Bone Spring. This is still an early stage delineation of a large hydrocarbon resource but the signs are encouraging. We also believe the Midland exposure is underestimated.</p>

⁶⁶ Credit Suisse, “Apache Corp., Alpine High is Getting Closer,” May 4, 2017.

Exhibit 12

Impact Date	Event
	<p>Valuation: EPS estimates for 2017/2018 increased slightly to \$1.43 and \$2.01 (from \$1.41 and \$1.80) after updating the production model.</p> <p>Risks: Risks to our estimates would include non-compliance of OPEC members and inventories remaining elevated, leading to weaker commodity prices.</p> <p>Deutsche Bank wrote the Company reported “[s]tronger than expected operational execution ... drove a CFO/EBITDA [and adjusted EPS] beat in 1Q17” versus its estimates. The analyst “s[aw] the incremental well disclosures in the Alpine High ... as a positive on the margin, [but] the pace of updates may frustrate investors over the near-term.” The analyst noted that “[t]he early start to Alpine gas flows ... drives a 1% upward revision to the mid-point of the [Company’s] FY17 target”.⁶⁷</p> <p>1Q17 Beat on Realizations, Lower Opex; “Oilier” Alpine Wells From Shallower Targets Stronger than expected operational execution (pricing +\$.8/boe vs. DBe, 12% lower opex) drove a CFO/EBITDA beat in 1Q17 (\$730mm/\$974mm vs. DBe of \$693mm/\$927mm) and with accelerated timing on Alpine High first gas sales driving a 1% upward revision to the FY17 NA onshore target, execution momentum is building exiting the Qtr. And while we see the incremental well disclosures in the Alpine High (2 higher oil cut wells) as a positive on the margin, the pace of updates may frustrate investors over the near-term and with little incremental visibility on gas marketing and resource potential/prospectivity, we remain Hold for now.</p> <p>What to look for on the call? Alpine High Updates: 2 New “Oily” Wells: APA announced three new wells in 1Q in the Alpine High, including 2 shallow interval targets driving record oil-cuts in the Woodford (~35%, Chinook 101AH 2-stream IP-24 of 2050 Mboe/d) and in the Barnett (~45%, Blackhawk 5H 2-stream IP-24 of 1625 Mboe/d) on ~4500’ laterals in the NW over-pressured part of the play. We look for updated mgmt thoughts on potential oil prospectivity, timing around near-term (lower-depth) targeted pilots (Redwood 4HWolfcamp, Mont Blanc 5H -Penn, Weissmies 7H -Penn,</p>

⁶⁷ Deutsche Bank, “Apache Corp., Executing Along At Its Own Pace,” May 4, 2017, 1:09 PM.

Exhibit 12

Impact Date	Event
	<p>etc.), preliminary insight on crude quality (announced wells had a 50-55 API gravity), and updates on gas marketing efforts in the broader play with gas sales accelerated vs. prior timeline.</p> <p>Production Outlook: Modest Revision Up From Early Alpine Gas Sales An early start to Alpine gas flows (May 3rd start vs. prior June 30th target) drives a 1% upward revision to the mid-point of the FY17 target (now at 260 Mboe/d vs. DBe 259 Mboe/d) with 2Q17 target at 386 Mboe/d vs. DBe 379 Mboe/d; however, the 4Q18 exit rate remains unchanged. The FY17 int'l production target remains on track for 149 Mboe/d (at the midpt). In the Qtr, production (398 vs. DBe 400 Mboe/d, net) was in-line with a slightly better oil mix (51% vs. DBe 50%) driven by lower than expected downtime in the North Sea with Permian oil volumes in-line (75 vs. Dbe 76 Mb/d).</p> <p>Cost Updates: LOE Beat; FY17 Capex Target Unchanged A beat on LOEs (\$8.45/boe vs. DBe \$9.1/boe, ex tax bbls) drove a \$0.25/boe reduction to the FY17 target (now at \$8.50/boe on a gross basis or \$9.26/boe, ex tax bbls). However, with 1Q LOEs (\$/boe) tracking 11% lower than the implied run-rate for the remainder of the year, we look for management to discuss the drivers of the cost beat in the Qtr and the potential to drive momentum forward.</p> <p>1Q Results: Better Pricing, Lower Costs Drive 1Q Beat Adjusted EPS of \$0.08/sh was a beat vs. DBe (-\$0.11/sh), driven by lower DD&A as well as relative strength in underlying cash flow drivers with CFO (ex working capital)/EBITDA (\$730mm/\$974mm) vs. DBe (\$693mm/\$927mm) on better realizations (+\$.8/boe vs. DBe), and lower operating costs (\$13.5/boe vs. DBe \$14.8/boe ex Egypt tax bbls. A beat on LOEs drove a downward revision of \$0.25/boe to the FY target (now at \$8.50/boe at the mid-point).</p> <p>Evercore wrote that the Company's first quarter production and cash flow exceeded its estimates and consensus, while adjusted EBITDAX exceeded Evercore's estimate. The analyst opined that "early well results from the [Alpine High] play have generally left the street unconvinced" despite "the pull-forward of production from the play</p>

Exhibit 12

Impact Date	Event
	<p>and an upward revision to 2017 production guidance.” Evercore commented that “the burden of proof remains on APA as 2017 shows a return to growth driven largely by a ramp in Alpine High”:⁶⁸</p> <p>The approach at APA remains consistent. Significant free cash flow generation from a stable international asset base, combined with rolling potential non-core asset sales will continue to fund investment in growing the NAM onshore within cash flow and a particular focus on Alpine High. While early well results from the play have generally left the street unconvinced, management’s confidence in the asset and the systematic and deliberate approach taken to delineation is clear and ultimately should narrow the gap in expectations. Infrastructure constraints and gas flaring rules have limited APA’s ability to optimize early test wells and today’s release noted midstream buildout has progressed ahead of schedule - enabling not only more optimized well tests but also driving the pull-forward of production from the play and an upward revision to 2017 production guidance (up ~4 mboe/d). Meanwhile APA continues to focus on the cost structure, driving a downward revision to expected LOE. As 2Q marks the trough in production, the burden of proof remains on APA as 2017 shows a return to growth driven largely by a ramp in Alpine High. Maintain In Line.</p> <p>1Q17 Results. APA reported total production of 481 mboe/d (incl. NCI), exceeding our/street estimates of 468/477 mboed. Total NAM volumes of 252 mboe/d also exceeded our 248 mboed estimate (Canada), while Egypt and N. Sea volumes drove the remainder of the production beat. 1Q17 unit costs were below our expectations with per boe LOE, transport, and SG&A ~8% below our (combined), with APA revising 1Q17 operating cost guidance downward. Thus Adj. EBITDAX of \$999mm exceeded our \$883mm with CFPS of \$2.85 above our \$2.23 (O&G revenues less cash costs per share). APA averaged 30 rigs in 1Q (13 Permian, up from 7 q/q), D&C’ing 46 gross operated wells (22 Permian).</p> <p>What to look for on the call?</p> <p>1) Alpine High: infrastructure buildout, well results. We look for details on APA’s shift to development on AH, and expect considerable interest in the read-through from today’s early well</p>

⁶⁸ Evercore ISI, “Apache, Taking the Long View,” May 4, 2017, 1:06 PM.

Exhibit 12

Impact Date	Event
	<p>results to potential for oilier development. Today's release indicated APA was moving to optimize activity in the Woodford, Barnett, and Penn with planned spacing tests, improved wellbore placement, enhanced completions and longer laterals (in some cases) all underlying the outlook for well productivity. Also, the potential for the play to produce higher-margin oil has remained an open question for investors and we look for details along these lines in light of the three test well results released today.</p> <p>2) International: maintenance impacting 2Q. Drilling and facilities installation is underway at APA's Callater development project, with first production expected in 3Q17. In preparation APA moved maintenance to 2Q. Downtime is also planned in Canada this quarter for seasonal gas plant maintenance. While APA maintained quarterly int'l production guidance we look for any updates on maintenance activities and impact on the trajectory.</p> <p>JP Morgan expected a "Positive" stock price reaction after the Company reported "solid 1Q17 financials, a slight full-year NaM guidance bump (international was unchanged excluding tax barrels), and positive news flow on Alpine High." The analyst observed that the Company's new full-year production guidance was "in-line" with its estimate:⁶⁹</p> <p>JPM View: Stock Reaction—Positive. Against a relatively low bar, we believe the combination of solid 1Q17 financials, a slight full-year NaM guidance bump (international was unchanged excluding tax barrels), and positive news flow on Alpine High should carry the day.</p> <p>FY17 NAM Production Guidance Raise: APA raised its full year NaM production guidance by 1%, or 2.5 MBoe/d, with the new guidance range dialing in production at 256 to 264 MBoe/d. The NaM guidance raise helped the company bump its total company full year guide to 485 to 503 MBoe/d, which is 1% above consensus, but in line with JPMc. APA reiterated its 2017 capex guide at \$3.1 billion. APA trimmed its full year LOE cost guide by \$0.25 per boe, while keeping the other cost line items unchanged.</p>

⁶⁹ JP Morgan, "Apache Corp, 1Q17 Earnings Flash - ALERT," May 4, 2017, 9:43 AM.

Exhibit 12

Impact Date	Event
	<p>Quarterly Production Guide In line with JPMe: APA expects adjusted production for 2Q17 to average 381 MBoe/d, 1% below JPMe. APA expects 3Q17 and 4Q17 adjusted production to average 414 MBoe/d and 442 MBoe/d, respectively, essentially in-line with JPMe. APA guided NaM production for 2Q17, 3Q17 and 4Q17 at 243 MBoe/d, 263 MBoe/d and 283 MBoe/d respectively which is above JPMe by 0.8%, 2.7% and 1.6% respectively. APA kept its 4Q18 production guidance unchanged at 485 to 537 MBoe/d consisting of 359 MBoe/d of NaM production and 152 MBoe/d of international production (both unchanged).</p> <p>Incremental Alpine High Data Points: APA had 3 new Alpine High test wells called Chinook, Blackhawk and King Hidalgo 3H, which tested the Woodford, Barnett, and Middle Woodford, respectively. Chinook and Blackhawk 5H dialed in the highest oil yield to date in the Woodford and Barnett, respectively, with the Oil: Gas ratio of 73 and 141, respectively. Chinook dialed in unshrunk gas at 8.5 MMcf/d and oil at 620 Bo/d, while Blackhawk 5H delivered unshrunk gas at 5.3 MMcf/d and oil at 742 Bo/d. King Hidalgo 3H was a 4,392' lateral that tested the Middle Woodford and delivered unshrunk gas at 6,954 MMcf/d and oil at 72 Bo/d. APA achieved first gas sales at Alpine High from its northern pipeline connection on May 3rd, 2 months ahead of schedule.</p> <p>Midland Basin Ops Update: APA averaged 6 rigs and 2 frac crews in 1Q17 with operations focused on the Wildfire, Azalea and Powell fields. APA brought online a 6-well Connell pad at Powell that generated an average IP-30 at 850 Boe/d (79% oil) and average D&C costs of \$4.6 MM.</p> <p>Morgan Stanley wrote that the Company reported “in line 1Q17 results and effectively lower[ed] FY17 guidance driven by changes in Egypt tax barrels.” The analyst cautioned that “[w]hile the better-than-expected execution of Alpine High midstream is a positive sign, the total production is guided lower and likely a higher near-term impact.” The analyst noted the Company’s adjusted EPS was lower than its estimates and consensus, while EBITDAX was higher than the analyst’s estimate but lower than consensus.⁷⁰</p>

⁷⁰ Morgan Stanley, “Apache Corp., 1Q17: Oilier Alpine High Wells,” May 4, 2017, 9:57 AM.

Exhibit 12

Impact Date	Event
	<p>APA reports in line 1Q17 results and effectively lowers FY17 guidance driven by changes in Egypt tax barrels. Two new wells highlight improving oil cuts, a step in the right direction, yet data points limited and Alpine High remains a key investor debate.</p> <p>1Q17 results in line. APA reports adjusted EPS/EBITDAX of \$0.08/\$972MM vs. MS of \$\$0.16/\$947 and Street's \$0.14/\$983. EBITDAX beat vs. MS driven by 12% LOE/boe, which was also lowered within the FY17 guide to \$8.25-8.75/boe from \$8.50-9.00/boe. Production of 481mboed largely in-line with Street and MS, but oil of 254mbbld misses Street/MS of 256/261mbbld. Oil miss vs. MS is largely attributable to North Sea.</p> <p>North America production guided higher, International guided lower on Egypt tax barrels. APA raised its total adjusted production guide to 402-416mboed from 398-415mboed (+1% at the midpoint). The majority of the change is attributable to NA volumes guided +1% at the midpoint to 256-264mboed from 252-263mboed, driven largely by gas volumes as first gas at Alpine High is 2 months ahead of schedule. Offsetting the NA raise is a 2% lower international guide (229-239mboed from 234-243mboed) due to projected changes in Egypt tax barrel volumes. While the better-than-expected execution of Alpine High midstream is a positive sign, the total production is guided lower and likely a higher near-term impact.</p> <p>Alpine High shows improved liquids cuts, a step in the right direction. Results from 2 new test wells offsetting existing producers in Alpine High show significantly improved liquids cuts. The Chinook 101AH, APA's highest yielding Woodford oil test, IP'd at 12.2mmcfed with a 30% oil cut, above the closest offset at 20%. Further, the latest Barnett test IP'd at 9.7mmcfed (46% oil), a significantly higher oil cut than earlier Barnett tests. In the southern delineation region, APA disclosed a successful Azimuth test offsetting the its previously disclosed King Hidalgo well. The well IP'd at 7.4mmcfed from a 4,392' lateral, a >50% improvement from the prior offset on a normalized basis. While the play's variability remains a concern, the increased liquids component is a positive step as continued success unlocking the plays oil potential can significantly improve the corporate cash flow growth outlook.</p>

Exhibit 12

Impact Date	Event
	<p>RBC wrote that the Company’s adjusted EPS and cash flow were “a little soft to Consensus but in line with our model,” capital spending was higher than both RBC and consensus estimates, and production was in line with the analyst’s estimate. The analyst added that Alpine High oil results were “encouraging”.⁷¹</p> <p>Two new Alpine High wells registered initial oil rates that averaged near 700 bbl/d, which is encouraging. Infrastructure two months ahead.</p> <p>1Q17 looks a little soft to Consensus but in line with our model. APA reported 1Q17 recurring EPS/CFPS of \$0.08/\$1.91 in line with our \$0.08/ \$1.87 estimate but below the Street consensus \$0.15/\$1.96 estimates. Capital spending of \$646 million was above our \$595 million estimate and the Street consensus of \$582 million.</p> <p>No big surprises with 1Q17 production. Production (excluding noncontrolling interest & tax barrels) of 398 Mboe/d was in line to RBC 398 Mboe/d estimate. Oil volumes of 204 Mbbl/d were also in line. US onshore production was down 1% sequentially but slightly better than our model on stronger NGL volumes.</p> <p>Onshore US production increased with Alpine High infrastructure ready sooner; international slightly lower. The infrastructure system is now expected online two months earlier from its prior July 1 target, which is a bit sooner than we anticipated. Management had previously commented that it would be accelerated. Adjusted production of 402-416 Mboe/d is 1% higher but mostly related to the Alpine High gas volumes due to the aforementioned infrastructure timing. The 2017 budget of \$3.1 billion was unchanged, despite the higher 1Q17 spending.</p> <p>Oily Alpine High results look good. There were three new wells, including two in the north that tested shallower areas of the Woodford formation. Those wells had 24-hour rates of 2,040 boe/d (30% oil) and 1,625 boe/ d (38% oil) on short “standard” laterals of approximately 4,500 feet. The initial oil tests and early performance looks encouraging, in our view.</p>

⁷¹ RBC Capital Markets, “Apache Corporation, Getting Oilier in Alpine High,” May 4, 2017, 9:13 AM.

Exhibit 12

Impact Date	Event
	<p>A better gas test in the southern Alpine High. The King Hidalgo 3H well produced at 7.0 MMcf/d, an improvement over the initial well that was 3.5 MMcf/d. Last quarter, management commented that its first well did not have the optimal azimuth, so we think it encouraging that better targeting is having a good impact. The #3H well's lateral length was 30% longer at 4,400 feet.</p> <p>Scotia wrote that “Apache’s quarter failed to meet [the analyst’s and consensus] expectations on the production and EPS side, although EBITDA beat estimates. The analyst commented that it was “positive” that Alpine High production was “ahead of schedule” but “international volumes [guidance] are slightly less due to Egypt tax barrels ... [t]herefore, the optics are not necessarily positive on the guidance update.” Scotia added that “[e]lsewhere updates were uneventful”:⁷²</p> <p>QUICK TAKE: Apache’s quarter failed to meet expectations on the production and EPS side, although EBITDA beat estimates. Looking ahead, the positive is that the Alpine High production is ramping up about two months ahead of schedule due to early completion of the midstream, triggering a modest bump to North American production guidance. However, international volumes are slightly less due to Egypt tax barrels, which is a higher margin unit of production. Therefore, the optics are not necessarily positive on the guidance update. Operationally, the Alpine High continues to garner the most attention, and APA is looking to find the optimal oil/gas mix with new wells. Elsewhere updates were uneventful. We continue to avoid being drawn into the attractive multiple afforded to APA and are more interested in names with a better “growth at a reasonable price” metric.</p> <p>KEY POINTS 1Q17 Financials: APA reported 1Q17 EPS and EBITDA of \$0.08 and \$999 MM, versus SHW of \$0.14 and \$973 MM and consensus of \$0.12 and \$919 MM.</p> <p>NAM Production Guidance Increased Slightly: The company reported adjusted total production of 398 Mboe/d, which came in below the SHW estimate of 420 Mboe/d. Despite the production</p>

⁷² Scotia Howard Weil, “Apache Corporation, Reports 1Q17 Financials with EPS Miss, EBITDA beat,” May 4, 2017, 10:37 AM.

Exhibit 12

Impact Date	Event
	<p>miss, APA has raised the lower end of NAM 2Q17 and 4Q17 guidance by 4 MBoe/d. Reported international production is decreased 2% due to projected changes in Egyptian tax barrel volumes.</p> <p>Alpine High Update: Alpine High achieved first gas sales in May, almost 2 months ahead of schedule. The company operates six rigs currently and announced three new well results with 2 targeting shallower zones in the Woodford and Barnett, yielding the highest oil mix to date in both reservoirs. On a 3 stream basis, APA expects the Woodford to reach a peak 24 hour rate of 2,500 Boe/d (51% oil) and the Barnett well to peak at 1,800 Boe/d (57% liquids).</p> <p>Societe Generale wrote that the Company's adjusted EPS and DCFPS were below its estimates and consensus while "[p]roduction volumes were in line and lower as planned." The analyst noted that new wells at Alpine High showed "encouraging results." The analyst commented that Apache "lowered unit LOE guidance for the year and made no change to their \$3.1 billion cap-ex budget":⁷³</p> <p>1Q17: Adjusted EPS/DCFPS (discretionary cash flow after common stock dividends) were \$0.08/\$1.67 vs. SGe of \$0.18/\$1.71 and Street of \$0.20/\$1.89. Reported EPS of \$0.56 included \$183MM of net AT asset sales gains. Production volumes were in line and lower as planned. Unit costs declined with the exception of exploration expense, which proved to be the main earnings delta, which APA doesn't adjust out. More importantly, APA generated DCF of \$730MM, which was \$84MM greater than upstream cap-ex of \$646MM (the 4th sequential quarter of FCF), and \$11MM less than cap-ex and common stock dividends combined. In 1Q17, APA did have \$275MM of incremental working capital needs, but ended the quarter with \$1.5 billion (\$4/share) in cash. They lowered unit LOE guidance for the year and made no change to their \$3.1 billion cap-ex budget. APA's LTD/Book cap at quarter's end was 57%. Also, APA bought puts in 1Q17, flooring all of their oil output for 2H17 \$50.47/bbl because of concerns about near-term price volatility.</p>

⁷³ Societe Generale, "Apache Corp, 4th quarter of positive free cash flow from operations, AH progressing, LOE declining. EPS miss a non-issue," May 5, 2017, 12:50 AM.

Exhibit 12

Impact Date	Event
	<p>Operations Highlights: In 3Q17, APA had 30 rigs turning. In the US 16: Alpine High 6, Midland 6 and completed 19 total Permian wells. In the UK North Sea: 3 rigs with 2 net wells; and Egypt 11 rigs ran with 17 net wells completed. About 68% of APA's \$646MM cap-ex was earmarked for the Permian. The milestone in the quarter, in our opinion, was the start of Alpine gas production of 20MMcf/d which will reach 50 MMcf/d by end-2Q17 and will continue to grow. Sales came 2 months early, demonstrating the advantage of APA controlling their GTP infrastructure. They brought on 2 seasoned Mid-Stream execs in the quarter and a year or more down the line could monetize the GTP infrastructure.</p> <p>Alpine High Update: Three new wells with encouraging results were discussed in terms of oil and liquids yields. APA's testing has confirmed that the entire source rock sequence is over-pressured and that the depth/temperature affects the hydrocarbon phase over their 320,000 acre block. With initial northern pad tie-ins production started (4 wells), 22 wells awaiting infrastructure and 14 needing completion or flowing back, output should grow with tie-ins. APA now has 14 miles of 30" trunk lines, 11 miles of gathering systems, 5 CPFs, 10 tank batteries and 1 water recycling facility in various stages of construction. By the end of 2018, APA will have a 30" line connected to 3 market pipelines to the north and one to the south and a third line to Waha by 2019. GTP separation, compression and processing facilities will be built ahead of development and a cryogenic plant (for ngl extraction) is being reviewed. A ngl pipeline will be completed by 2019 to reduce trucking. And on the marketing side, APA contracted 2017 gas sales and is working to develop a 'portfolio of market solutions'.</p> <p>SG View: YTD, APA's stock is down 25%. APA's CEO says that the company's "overarching objective is to deliver long term returns-focused growth by budgeting conservatively, maintaining flexibility with a relentless focus on costs to achieve the highest npv from their assets with the highest value opportunities". We still don't think that the Street understands APA's M.O., but as the Alpine High grows it will.</p> <p>UBS wrote that the Company's "1Q EPS misse[d the analyst's and consensus estimates] on higher taxes & exploration expense but EBITDX beat[]," as did production. The analyst observed that Apache "[r]aise[d] 2017</p>

Exhibit 12

Impact Date	Event
	<p>North American production guidance on early Alpine High start” but overall production guidance was “down ~4-7% YoY”:⁷⁴</p> <p>1Q EPS misses on higher taxes & exploration expense but EBITDX beats 1Q clean EPS of \$0.08 was below consensus’ \$0.12 & UBSe \$0.17 with the miss vs. UBSe due to higher current taxes and exploration expense. EBITDX rose 85% YoY to ~\$1.02bn, above consensus’ ~\$919MM and UBSe of ~\$938MM. Production fell 12% YoY to ~481.1 MBoed, above UBSe of ~472 MBoed and consensus of ~473 MBoed. Price realizations rose 58% YoY to \$5.81, in line with UBSe. Unit costs rose 5% YoY to \$5.17/Boe, still ~1% below UBSe despite the higher exploration expense. We will revise estimates post conference call.</p> <p>Raises 2017 North American production guidance on early Alpine High start APA slightly raised its 2017 North American production guidance from 252-263 MBoed to 256-264 MBoed (down ~7-10% YoY albeit roughly flat with 4Q16 levels) as first gas from Alpine High was achieved yesterday (two months ahead of schedule). APA’s International production guidance (including Egyptian tax barrels) was adjusted from 234-243 MBoed to 229-239 MBoed entirely due to projected changes in tax barrel volumes. Thus, APA’s 2017 companywide production guidance (including Egyptian tax barrels) has been adjusted from 486-506 MBoed to 485-503 MBoed (down ~4-7% YoY). APA maintained expectations for total production to grow at a 7-13% CAGR from 4Q16 to 4Q18 with volumes (before Egypt tax barrels) reaching 570-622 MBoed. APA also reiterated its 2017 capex budget of \$3.1bn (+60% YoY).</p> <p>Highlights 3 new Alpine High wells APA announced three new Alpine High wells, two of which delivered the highest 24- hour oil rates and oil cuts to date in the Woodford and Barnett formations. The Chinook (Woodford) and Blackhawk (Barnett) wells achieved 24-hour IP rates of ~12.2 MMcfed (~30% oil) and ~9.8 MMcfed (~46% oil), respectively. We’d note APA’s prior 10 Woodford and 3 Barnett wells had average 24-IP rates of ~8.5 MMcfed (~11% oil) and ~11.8 MMcfed (~16% oil). Meanwhile,</p>

⁷⁴ UBS, “Apache Corporation, 1Q EPS Misses but EBITDX Beats; Alpine High Gets Early Start and Highlights 3 New Wells,” May 4, 2017.

Exhibit 12

Impact Date	Event
	<p>APA's 3rd new well (King Hidalgo 3H) targeted the Middle Woodford and achieved a 24-IP rate of ~7.4 MMcfed (~6% oil) vs. its prior Middle Woodford well of ~3.5 MMcfed (~4% oil).</p> <p>Valuation: roughly in line with peers on EV/DACF and P/NAV Our \$55 target assumes 6.2x normalized 2018E DCF, in line with historical avg.</p> <p>Wells Fargo wrote that the Company's adjusted EPS and cash flow were short of its estimates and consensus with the "[m]iss driven by lighter volumes and slightly higher expenses." The analyst commented that the Company's 2017 production guidance was "[r]elatively [u]nchanged" with "[b]ack-half-weighted production, but early Alpine High startup lowers execution risk".⁷⁵</p> <p>Takeaway: Positive. 1Q production light but capex better. Call focus to be solid Alpine High test wells and early startup of midstream, which lowers 2H17 execution risk. Regarding stock reaction, Apache a heavily shorted stock, with Alpine High at the center of that thesis. We don't know whether or not this is enough to cause a short squeeze, but wouldn't be surprised to see a positive stock reaction.</p> <p>Key Points Production Light (pro forma). Total of 398 Mboe/d vs. our 405 Mboe/d. Crude came in at 203 Mbbl/d which was 2% below our estimate of 208 Mbbl/d (we modeled 78 Mbbl/d in Permian vs. actual 75). Gas at 842 MMcf/d missed our 869 MMcf/d with a big decline in N. Sea volumes. NGLs were 54 Mbbls/d compared to our 52.</p> <p>Guidance Relatively Unchanged. 2017 pro forma guidance now at 402-416 Mboe/d versus 398-415 prior. Capex maintained at \$3.1B. 2Q North America production guided down 3.4% vs. 1Q (not unexpected). Back-half-weighted production, but early Alpine High startup lowers execution risk. LOE lowered for full-year.</p>

⁷⁵ Wells Fargo, "APA: Proving Alpine High Oil," May 4, 2017.

Exhibit 12

Impact Date	Event
	<p>Operations Alpine High Highlights. 30 average rigs versus 18 in 4Q (+6 in Permian, +34 in Egypt), above our expectations. Permian: 3 new wells announced, including IP24 Woodford test at 8.5 MMcf/d and 620 bbls/d of oil and Barnett 5.3 MMcf/d and 742 bbls/d of crude. Solid results, particularly given expectations. In addition, Azimuth test indicates favorable thermal mature window for liquids in southern acreage. 2 month early startup. Midland: Powell 6well pad at IP30 of 850 boe/d on 5,000' lateral. Egypt: Production down 2%. North Sea: Production off meaningfully, to 58,000 boe/d from 70,000. Suriname. Well determined not commercially viable (previously announced).</p> <p>EPS/Cash Flow. Adjusted EPS of \$0.08 vs. us/consensus of \$0.09/\$0.14. CFPS of \$1.92 vs. our/consensus \$1.97/\$1.96. Miss driven by lighter volumes and slightly higher expenses.</p> <p>Conference Call Focus: Alpine High oil wells, Suriname well, A&D update. Details: Thursday (5/4), 2:00pm ET. 8888301024 #48380128.</p> <p>Wells Fargo, in a later report, added that it raised its 2017 and 2018 EPS estimates for the Company “mostly driven by a better outlook on expenses including DD&A”:⁷⁶</p> <p>Summary. We have updated our model assumptions following 1Q earnings. The net impact of the update shifts our 2017E and 2018E EPS from \$0.65 and \$0.65 to \$0.76 and \$1.00, respectively. The change was mostly driven by a better outlook on expenses including DD&A. A more detailed earnings model can be found within.</p> <p>Wolfe did not comment directly on the Company’s results. The analyst remarked “there is a sense of almost hostility between investors/analysts who doubt the attractiveness of the [Alpine High] play, and the company.” Wolfe cautioned that it “struggle[d] with valuation” of the Alpine High opportunity and “FCF remain[ed] constrained”:⁷⁷</p>

⁷⁶ Wells Fargo, “Apache Corporation, APA: Model Update,” May 8, 2017.

⁷⁷ Wolfe Research, “Apache Corp., Want to get Alpine High?” May 4, 2017.

Exhibit 12

Impact Date	Event
	<p>The Apache story focusses on Alpine High, the offset Permian discovery that APA management announced with considerable fanfare – and specially made baseball caps – last September. Yes a Permian play, but Alpine High does not have the characteristics of the core-of-the-core. With considerable upfront infrastructure spend and gassy production deep in the Southern Delaware, an area that is already long natural gas (“winning at finding gas in the Western desert” as one client put it), there is a sense of almost hostility between investors/analysts who doubt the attractiveness of the play, and the company, which is resolute about the value of what they have discovered & are developing. We have questions – clients ask about management pay structure for example - but we are on a run of companies making interminable opening conference call statements and cutting Q&As, as Apache did this quarter – we were not polled. If oil managements think this is helping their investment case – and Apache is not alone here at all – maybe they should check the energy equity tape. From our point of view, the mixed business model (International, US unconventional) cashflow/capex outspend & long term gas marketing is not attractive.</p> <p>Executing on the midstream buildout – Alpine High gas sales started up this week, about two months ahead of schedule, which is contributing to the 4kboed lift to full year company production guidance. So at least one initial hurdle to value recognition has been lifted. The company can now begin to flow wells that had been shut in or curtailed. To date Apache has drilled ~40 test wells in the play and ~22 of them are either coming online or have been curtailed. There should be a good amount of well-level operational data coming online</p> <p>Management made it a point that wells brought on to date have been test wells – designed strictly for the purpose of minimize the cost of delineating the resource base and maximizing learning. Clearly this is an optimal longer-term strategy, especially considering Apache’s significant 300k+ net acre contiguous position in the play, but it is frustrating for investors that need conviction in company type curves and inventory assumptions. The three wells recently brought online, and the King Hidalgo in particular in the southern portion of the play, were evidence of potential productivity as drilling/completion techniques are refined, but even using company guided type curves we struggle with valuation. At \$60/bbl WTI and \$3.25/mcf HH we get to</p>

Exhibit 12

Impact Date	Event
	<p>~\$500Mn of free cash flow... in 2020. Granted, the company is tracking to grow double-digits (11.5% WR through 2020 with additional upside in 2021), but FCF remains constrained.</p> <p>Following the Company's disclosures on May 4, 2017, according to Bloomberg, the average of analysts' price targets for Apache stock decreased to \$59.77 from \$59.97, or -0.33%.⁷⁸ All 35 analysts who published investment ratings for the Company both before and after the earnings announcement maintained their ratings. (See Exhibit 5C.)</p> <p>Remark: Given the mix of information disclosed, including that: (i) the Company's adjusted EPS missed consensus but adjusted EBITDAX was ahead of consensus, cash flow was "inline," and production "matched consensus";⁷⁹ (ii) the Company "made slight upward adjustments to production guidance for 2017 since delivery of first gas at Alpine High was ahead of schedule";⁸⁰ and (iii) Apache "[i]nvestors remain[ed] skeptical on Alpine High,"⁸¹ the statistically insignificant Company-specific return on May 4, 2017 is consistent with that expected in an efficient market.</p>

⁷⁸ Wells Fargo is excluded from the analysis as it did not publish price targets both before and after the Company's announcement.

⁷⁹ Bank of America Merrill Lynch, "Apache Corp, 1Q17 First look: EPS miss, Alpine High in focus but with limited new well data," May 4, 2017, 12:41 PM. *See also, e.g.,* Barclays, "Apache Corp., APA Raises 2017 North America Production Guidance As Alpine High Comes Ahead of Schedule. 2018 Outlook Unchanged," May 4, 2017, 10:10 AM; Morgan Stanley, "Apache Corp., 1Q17: Oilier Alpine High Wells," May 4, 2017, 9:57 AM; UBS, "Apache Corporation, 1Q EPS Misses but EBITDX Beats; Alpine High Gets Early Start and Highlights 3 New Wells," May 4, 2017.

⁸⁰ Cowen and Company, "Apache Corporation, 1Q17 Earnings at a Glance," May 4, 2017. *See also, e.g.,* Bank of America Merrill Lynch, "Apache Corp, 1Q17 First look: EPS miss, Alpine High in focus but with limited new well data," May 4, 2017, 12:41 PM; Deutsche Bank, "Apache Corp., Executing Along At Its Own Pace," May 4, 2017, 1:09 PM; JP Morgan, "Apache Corp, 1Q17 Earnings Flash - ALERT," May 4, 2017, 9:43 AM.

⁸¹ Credit Suisse, "Apache Corp., Alpine High is Getting Closer," May 4, 2017. *See also, e.g.,* Cowen and Company, "Apache Corporation, 1Q17 Earnings at a Glance," May 4, 2017; Evercore ISI, "Apache, Taking the Long View," May 4, 2017, 1:06 PM; Wolfe Research, "Apache Corp., Want to get Alpine High?" May 4, 2017.

Exhibit 12

Impact Date	Event
8/3/2017	<p>Before market open on Thursday, August 3, 2017, the Company announced its second-quarter 2017 financial results. For the quarter, Apache reported production of 460 mboe/d, revenue of \$1.35 billion, EPS of \$1.50, and adjusted EPS loss of -\$0.21.⁸²</p> <p>The consensus estimates of the Company's quarterly revenue and adjusted EPS loss were \$1.41 billion and -\$0.01, respectively.⁸³</p> <p>John J. Christmann IV, Apache's chief executive officer and president, commented on the Company's results and updated guidance.⁸⁴</p> <p>Our second-quarter results and operational achievements continue to demonstrate the effectiveness of our underlying strategy. As anticipated, our total daily production bottomed out in the second quarter, and we have shifted to a growth trajectory. We expect continued production volume increases at Alpine High and in the Midland Basin, as well as from our international regions during the second half of 2017. We are successfully managing service cost pressure, LOE and general and administrative (G&A) costs across the company.</p> <p>Today, through the combination of expected cash flow from operations and proceeds from recent asset sales, we have the ability to fund our 2017 capital expenditures and dividend program without utilizing our balance sheet. Our \$3.1 billion capital program remains unchanged, and relative to year-end 2016, we expect to end 2017 with more cash, less debt and significantly higher production levels in the Permian Basin</p> <p>***</p>

⁸² Apache News Release, "Apache Corporation announces second-quarter 2017 financial and operational results," August 3, 2017. *See also* *GlobeNewswire*, "Apache Corporation Releases Second Quarter 2017 Financial and Operational Results," August 3, 2017, 8:00 AM.

⁸³ *RTT News*, "Apache Turns To Profit In Q2, But Results Miss View - Quick Facts," August 3, 2017.

⁸⁴ Apache News Release, "Apache Corporation announces second-quarter 2017 financial and operational results," August 3, 2017.

Exhibit 12

Impact Date	Event																																							
	<p>As we look to 2018, we are well prepared to manage a capital program commensurate with the prevailing price environment without stressing the balance sheet or diluting our shareholders. We are keenly focused on returns and have great confidence in the economics of our long-term investments and opportunity set. We have structured our business to adapt and thrive in a lower-for-longer price environment. Our focus on costs, maintaining a strong balance sheet and streamlining our business have positioned us to deliver returns-focused organic growth for many years to come</p> <p>In addition, Apache updated its 2017 guidance as follows:⁸⁵</p> <table><tr><td><u>Daily Production (mboe/d)</u></td><td><u>Previous</u></td><td><u>Updated</u></td></tr><tr><td>North America (ex-Canada)</td><td>206 - 211</td><td>206 - 211</td></tr><tr><td>International</td><td>146 - 152</td><td>146 - 152</td></tr><tr><td>Total Adjusted Production</td><td>352 - 363</td><td>352 - 363</td></tr><tr><td>Add: Canada</td><td>50 - 53</td><td>31 - 31</td></tr><tr><td>Add: Egypt Tax Barrels</td><td>40 - 42</td><td>30 - 32</td></tr><tr><td>Add: Egypt Noncontrolling Interest</td><td>43 - 45</td><td>43 - 45</td></tr><tr><td>Total Reported Production</td><td>485 - 503</td><td>457 - 471</td></tr></table> <table><tr><td colspan="3"><u>Other Income Statement Items (updated items only)</u></td></tr><tr><td colspan="3">Operating Costs</td></tr><tr><td>Gathering and Transportation (millions)</td><td>\$200 - \$250</td><td>\$180 - \$220</td></tr><tr><td>General and Administrative Expenses (millions)</td><td>\$450</td><td>\$425</td></tr><tr><td>DD&A (per BOE)</td><td>\$14.00</td><td>\$14.25</td></tr></table>	<u>Daily Production (mboe/d)</u>	<u>Previous</u>	<u>Updated</u>	North America (ex-Canada)	206 - 211	206 - 211	International	146 - 152	146 - 152	Total Adjusted Production	352 - 363	352 - 363	Add: Canada	50 - 53	31 - 31	Add: Egypt Tax Barrels	40 - 42	30 - 32	Add: Egypt Noncontrolling Interest	43 - 45	43 - 45	Total Reported Production	485 - 503	457 - 471	<u>Other Income Statement Items (updated items only)</u>			Operating Costs			Gathering and Transportation (millions)	\$200 - \$250	\$180 - \$220	General and Administrative Expenses (millions)	\$450	\$425	DD&A (per BOE)	\$14.00	\$14.25
<u>Daily Production (mboe/d)</u>	<u>Previous</u>	<u>Updated</u>																																						
North America (ex-Canada)	206 - 211	206 - 211																																						
International	146 - 152	146 - 152																																						
Total Adjusted Production	352 - 363	352 - 363																																						
Add: Canada	50 - 53	31 - 31																																						
Add: Egypt Tax Barrels	40 - 42	30 - 32																																						
Add: Egypt Noncontrolling Interest	43 - 45	43 - 45																																						
Total Reported Production	485 - 503	457 - 471																																						
<u>Other Income Statement Items (updated items only)</u>																																								
Operating Costs																																								
Gathering and Transportation (millions)	\$200 - \$250	\$180 - \$220																																						
General and Administrative Expenses (millions)	\$450	\$425																																						
DD&A (per BOE)	\$14.00	\$14.25																																						
	<p>The Company held a conference call with investment analysts the same day.⁸⁶</p>																																							

⁸⁵ Apache News Release, “Second-Quarter 2017, Financial and Operational Supplement,” August 3, 2017.

⁸⁶ Thomson Reuters, *StreetEvents*, “APA – Q2 2017 Apache Corp Earnings Call, EVENT DATE/TIME: AUGUST 3, 2017 / 6:00PM GMT,” August 3, 2017, 2:00 PM.

Exhibit 12

Impact Date	Event
	<p>Bank of America Merrill Lynch wrote that the Company’s adjusted EPS missed its estimate and consensus “on revenues and E&P expenses” while adjusted EBITDAX “was in line with consensus.” The analyst noted that Apache’s production “was at the top end of guidance” and capex “remains on track vs 2017 guidance.” The analyst cautioned that the Company’s “skew towards gas from oil remains the headwind we expect to keep incremental DACF per share growth lagging peers”:⁸⁷</p> <p>Earnings miss on revenues and E&P expenses Adjusted LPS of \$(0.21) compares to consensus of (\$0.02) (BofA ML LPS of \$0.07); note this includes \$0.08c of dry hole costs; otherwise versus our estimate the miss looks like price realizations (6c), higher LOE expenses (4c) with some offset from tax. Adjusted EBITDAX of \$850mm was in line with consensus (\$840mm) while cash flow of \$751mm, included \$148mm of working capital benefit, and lagged capex of \$738mm plus dividends and distributions of ~\$200mm. Cumulative capex of \$1.35bn remains on track vs 2017 guidance of \$3.1bn. Apache expects to close the spending gap with asset sales.</p> <p>Production ahead of guide: Permian gas mix in focus In the quarter Apache announced it’s the exit from Canada to occur in 3 separate transactions, with the first closed at end 2Q17 and the next two projected for August. Total expected proceeds of \$713mm will be prioritized to the Permian Basin, which has become the company’s primary growth engine but note Permian mix continues to skew towards gas – a trend we expect to continue given the dominance of the Alpine High in driving APA’s growth. Total production entitlements, of 388mboed was at the top end of guidance 376-388mboed, with North America at the high end (244 vs 240- 245mboed), and Intl of 144mboed ahead (136-141mboed).</p> <p>Appraisals confirm Alpine High oil play In 2Q17, 6 of the company’s 17 Permian rigs were deployed to the Alpine High where APA turned on 11 wells to new central processing facilities. The company connected to market the</p>

⁸⁷ Bank of America Merrill Lynch, “Apache Corp, 2Q17 First look: operating miss; more oil in the Alpine high but gas skew in focus,” August 3, 2017, 11:24 AM.

Exhibit 12

Impact Date	Event
	<p>first segment of its natural gas trunk line and is currently selling >60MMcfd of natural gas which is expected to increase to 100MMcfd in September. Management reported two appraisal wells that improve the risk profile of the oil leg in the play. The Wolfcamp #1, completed on a 4,500ft lateral averaged an IP30 of 1,000boe/d and ~493mboed over 75 days (70% oil). Wolfcamp #2 is still in clean up, but is producing 400bo/d. Data remains sparse while absolute levels keep the incremental story from the Alpine High swing the broader portfolio towards gas.</p> <p>Other operating updates: Midland and International Apache continues to run 6 rigs and 2 frac crews in the Midland Basin, where activity is focused on density and pattern testing in the Wolfcamp and Lower Spraberry Shale. The 9 and 10 well Schrock and Azalea pads were brought online this quarter. While unspecified, these look like single mile laterals, which would be consistent with the 6 well Connel pad brought online last quarter. These new wells had an average IP30 of 950boe/d (75% oil). Continued activity in the Permian is expected to drive an inflection in production levels which has slowly declined since 4Q15. US production is expected to increase to 214mbed, up 10mbed in 3Q17 vs 2Q17. In Egypt the company continues to run 13 rigs. Production averaged 89mboed, essentially flat q/q.</p> <p>Maintain Underperform Our Underperform rating on APA reflects uncertainty around the scale, timing and cashflow impact of accelerating gas production in the Permian. While incremental disclosure is welcomed, the skew towards gas from oil remains the headwind we expect to keep incremental DACF per share growth lagging peers.</p> <p>Barclays wrote that the Company's adjusted EPS was short of its estimate and consensus while adjusted EBITDA "was slightly higher" than its forecast. Barclays commented that "[w]hile Q2 oil volumes fell short of our forecast, APA reiterated that Q2 volumes should set the low point for the year and it reiterated 2017 capital budget and production guidance." The analyst thought that Apache "investors may focus on liquids volumes – which came in lower than expected".⁸⁸</p>

⁸⁸ Barclays, "Apache Corp., APA Maintains 2017 Capital Budget and Production Guidance (Adjusted For Announced Canadian Divestitures)," August 3, 2017, 9:23 AM.

Exhibit 12

Impact Date	Event
	<p>We expect fundamental investors to have a neutral to negative reaction to APA's second quarter 2017 earnings and operational update. Earnings and adjusted EBITDA were mixed relative to our estimates, but investors may focus on liquids volumes – which came in lower than expected. While Q2 oil volumes fell short of our forecast, APA reiterated that Q2 volumes should set the low point for the year and it reiterated 2017 capital budget and production guidance.</p> <p>Apache maintained its 2017 capital budget and production guidance (adjusted for the announced Canada divestitures). APA still expects to spend \$3.1 billion in capital this year. Volumes are expected to bottom in the second quarter 2017 with second half production increases driven Alpine High, the Midland Basin and international portfolio (North Sea had downtime in the first half and benefits from the Callater start-up in the second half). Alpine High and the Midland Basin are expected to be the growth drivers in the portfolio longer-term with international volume relatively flat.</p> <p>2017 lease operating expense guidance was reduced 3% at the midpoint. Apache now expects LOE of \$8.25-8.75 per BOE, compared to its previous \$8.50-9.00 per BOE forecast.</p> <p>Apache expects to complete its previously announced exit from Canada in August for \$713 million in total proceeds. The Canadian exit will result in the removal of \$800 million in asset retirement obligations from the balance sheet.</p> <p>APA ended the second quarter running 35 rigs across its portfolio. Apache ran 18 rigs in North America, with of six them in the Midland Basin and six at Alpine High. The company ran 13 rigs in Egypt and 4 rigs in the North Sea.</p> <p>“Clean” EPS of \$(0.21) fell short of our 0.01 estimate and consensus of \$(0.01). Adjusted EBITDA of \$840 million was slightly higher than our 813 million forecast. Clean EPS included the effect of dry-hole costs of \$0.08. Liquids volumes came in lower than we expected while gas was slightly higher. Realized prices were lower than our forecast across the board, with</p>

Exhibit 12

Impact Date	Event
	<p>particular weakness in gas and NGL price realizations. Costs were mostly lower across the board than we expected.</p> <p>Adjusted net earnings of \$572 million included the following non-recurring adjustments: 1) \$670 million of valuation allowance and other tax adjustments, 2) \$26 million loss of MTM commodity derivatives, 3) \$25 million of asset impairments, 4) \$18 million loss on divestitures, 5) \$2 million of transaction, reorganization and separation costs.</p> <p>Barclays, in a later report, added that the Company “guided to ~40% growth over the next 6 quarters,” which, if achieved, would cause Apache to “outperform [the analyst’s] expectations.” The analyst stated that “[v]olumes are about to turn upward,” and noted that the Company “expect[ed] its oil mix to rise” at Alpine High, but Barclays “expect[ed] oil to fall”.⁸⁹</p> <p>Q2 volumes were down -15% from a year ago (and bit weaker than we expected) as Apache recovers from the lingering impact of sharp 2016 spending cuts. Volumes should trough in Q2 and rise rapidly as activity increases. APA guided to ~40% growth over the next 6 quarters. If Apache can deliver +/-40% growth along with strong oil growth it may outperform our expectations. We are Underweight for two reasons; we believe (1) oil growth will lag overall growth and (2) the market places too high a multiple on international cash flow (-55% of the total). Our sum-of-the parts value and price target are \$30 per share.</p> <p>Volumes are about to turn upward. APA projects a +/-15% production increase by Q4 (to 379-401 mboepd vs 337 mboepd in Q2); but oil growth will be the key. APA maintained its 2017 capex budget of \$3.1 bn, which implies a cash deficit of- \$1 billion. Production guidance, after adjusting for the planned Canada exit was unchanged.</p> <p>Alpine High started up ahead of schedule - but it is -90% gas, for now. The gassy start at Alpine High illustrates a key challenge at Apache as we expect oil to fall from 56% of overall volumes</p>

⁸⁹ Barclays, “Apache Corp., APA’s Q2 Volumes Fell as the Co. Suffers a Hangover from 2016’s Reduced Cap-ex,” August 7, 2017, 12:10 AM.

Exhibit 12

Impact Date	Event
	<p>in Q217 to less than 40% by Q418. The company expects its oil mix to rise as it expands its focus beyond the deep, gassy, northernmost acreage and pursues targets such as the Wolfcamp where it recently drilled a well with a 70% oil cut. APA is currently running 6 rigs in Alpine and has connected 11 wells with 5 on constrained flow. Current midstream facilities include 35 miles of 30-inch gas trunkline, two CPFs and eight tank batteries.</p> <p>APA trades at a 5% discount to peers 2018E pre-interest cash flow, despite a large share of international assets. We estimate that 55% of 2017E cash flow (excl. Canada) is derived from low-multiple international assets. Potentially less exciting U.S. oil growth may lead to weak returns and a larger discount over time. We expect APA will earn corporate returns that will lag peers by over 10% this year and a wider margin next year.</p> <p>BMO wrote that the Company “reported an in line 2Q” as EPS was below the analyst’s and consensus estimates, EBITDAX was above both, and production was below. The analyst noted that the Company’s “2017/4Q18 outlook was unchanged”.⁹⁰</p> <p>Bottom Line: Apache reported an in line 2Q with EPS below, but EBITDAX above expectations. Production was at the high-end, but below estimates. Oil was in line, but versus our model on better North Sea (International beat guidance), offset by lower Permian. Alpine High volumes are only 10MMcf/d higher than mid-June, but should ramp by 40MMcf/d by end of September. One Wolfcamp oil well had a strong 30-day IP (70% oil), while the 2017/4Q18 outlook was unchanged.</p> <p>Key Points 2Q Production at High-End. Apache reported 2Q17 EPS of -\$0.21, below our/consensus -\$0.02 estimates. EBITDAX of \$850mm exceeded our/consensus \$764/776mm, while CFO of \$751mm also beat our \$686mm. Production of 460MBoe/d was below our/ consensus 466/462MBoe/d (Canada disclosure intra-quarter implied a beat), although pro-forma volumes of</p>

⁹⁰ BMO Capital Markets, “Apache, 2Q Production at High-End, But Permian Oil Light; Alpine High Ramp Continues,” August 3, 2017, 8:54 AM.

Exhibit 12

Impact Date	Event
	<p>388MBoe/d were above guidance (376-386MBoe/d). Oil of 243MBo/d was in line with our/consensus 242MBo/d, but versus our model was low on Permian (72MBo/d vs. 78MBo/d), while North Sea beat (+8MBo/d) on less maintenance (pro-forma International of 143MBoe/d beat 136-141MBoe/d guidance). Consolidated capex of \$897mm compared to our/consensus \$828/811mm, but Apache noted capex (and LOE) were tacking at or below guidance for 2017.</p> <p>Alpine High Update Highlights Two Wolfcamp Oil Wells. Alpine High production is averaging 60MMcf/d (vs. +50MMcf/d mid-June) and should increase to +100MMcf/d by end of 3Q. Two Wolfcamp oil wells were highlighted, with the first (4,500') achieving a strong 30-day IP of +1,000Boe/d and recovering 37MBo (70% oil) over 75 days, while the second well is producing 400MBo/d and still cleaning up. Apache noted that Wolfcamp success supports the addition of “hundreds” of locations. Production from the Callater well (19MBoe/d) in North Sea is in line with disclosure from mid- June and supports strong 2H17 growth. Pro-Forma international production guidance for 3Q-4Q17/4Q18 is unchanged (GAAP moves lower on Egypt tax barrels), while NAM 3Q-4Q was updated for Canada divestiture (no other changes). We’d note 4Q18 NAM was trimmed by 50MBoe/d compared to Canada volumes of 52MBoe/d in 1Q17 and 50MBoe/d in 2Q17.</p> <p>Cowen expected a “Negative” reaction to the Company announcement as “2Q17 production [was] relatively in-line with our estimates and consensus” but “Alpine High results likely will disappoint investors ... [who] were looking for more detail on wet gas wells”:⁹¹</p> <p>Negative. 2Q17 production relatively in-line with our estimates and consensus. Alpine High results likely will disappoint investors. We believe investors were looking for more detail on wet gas wells.</p> <p>Stock Thoughts 2Q17 production relatively in-line with expectations. Alpine High results look promising but additional data points needed. Canada exit a positive.</p>

⁹¹ Cowen and Company, “Apache Corporation, 2Q17 Earnings at a Glance,” August 3, 2017.

Exhibit 12

Impact Date	Event
	<p>What to Expect on the Call</p> <p>Canada Exit: APA announced its exit from Canada for \$713 million. The exit is expected to have positive effects on G&A, average cash margin per Boe, earnings per share, free cash flow, and returns on capital. Capital expenditures however are not impacted because the company believes that most of the capital allocated to the play will be utilized by closing. Canadian volumes were 52 and 50 Mboe/d for 1Q17 and 2Q17, respectively (approximately 13% and 11% of total production).</p> <p>Alpine High: The company completed their first appraisal wells in the oil window of the Wolfcamp formation at Alpine High. The company expects projected production from this play to more than offset Canada production in 1H18. In 2Q17, an average of six of the eight rigs in the Delaware were at Alpine High. APA released results for one of the wells recently completed: 4,500 foot lateral, 30-day average rate of 1,000 boe/d, and cumulative production of 37Mboe (~70% oil) over 75 days. There is a second well currently cleaning up and we expect investors are interested in its results.</p> <p>Guidance Highlights</p> <p>FY17 North America (ex-Canada) and International production guidance remains unchanged at 206 - 211 Mboe/d and 146 - 152 Mboe/d, respectively. Total reported production guidance, adjusting for Canada and Egypt decreases from 485 - 503 Mboe/d to 457 - 471 Mboe/d.</p> <p>FY17 capex guidance unchanged and not impacted by the Canada exit.</p> <p>LOE is tracking at or below plan; previous guidance range of \$8.25 - \$8.75/boe is unchanged.</p> <p>Annual gathering and transportation guidance falls from \$200 - 250 million to \$180 - \$220 million.</p> <p>APA announced 3Q17 North America production guidance of 208 - 214 Mboe/d. 3Q17 total production guidance is 354 - 370 Mboe/d.</p>

Exhibit 12

Impact Date	Event
	<p>Deutsche Bank wrote the Company topped its production estimate and “[c]ost declines continue to exceed expectations.” However, the analyst cautioned that Apache’s “slow pace of clarity in the Alpine High, 2Q cash flow, and the 3Q production guidance likely underwhelmed investors.” The analyst added that there was “much anticipation and increasing investor expectations as to what the ultimate potential of Alpine High may hold,” but “a larger update providing greater clarity as to total resource potential from Alpine High is likely further out”.⁹²</p> <p>2Q17 CFPS \$1.57 vs. DBe \$1.78, Vols. 388mboe/d vs. 382mboe/d</p> <p>Despite a positive well result in the “oily” portion of the Alpine High, and the potential addition of quality drilling inventory, the slow pace of clarity in the Alpine High, 2Q cash flow, and the 3Q production guidance likely underwhelmed investors, particularly into a “risk-off” Permian tape. Alpine High remains a significant resource with upside potential, however margins leave cash flow growth relatively disadvantaged vs. peers, and we see greater value elsewhere. Hold.</p> <p>Positive: Headline beat on production vs. DBe (388 Mboe/d vs. 382); Cost declines continue to exceed expectations, a common theme this quarter (Total opex + DD&A of \$26.91/boe vs. DBe \$28.83); Two successful oil tests in the Alpine High, including Wolfcamp #1 with IP30 of 1,000+ boe/d (70% oil), likely derisking hundreds of locations. Negative: Little incremental clarity on Alpine High resource or development plans; CFO disappointed (\$603mm vs. DBe \$683mm); outspend to continue through 2018.</p> <p>Key Call Takeaways:</p> <p>Alpine High: Although much of the activity seen from Alpine High todate has focused on APA’s northern acreage, which is deeper and has a lower oil volume content, in order to hold leases, positive results from two early Wolfcamp wells targeting the oil window of the play have come into recent focus. The first well had a 30-day IP >1,000 boe/d, ~70% oil over 75 days with a ~4,500’ lateral while the latter well is still cleaning it is producing ~400 bo/d, and with the encouraging results validating oil resource productivity, there will be a particular focus around the depth of the oil resource base and around potential to increase quality oil focused inventory from the play, although APA indicated we likely won’t get material datapoints for some time</p>

⁹² Deutsche Bank, “Apache Corp., High On The Alpine,” August 3, 2017, 11:30 PM.

Exhibit 12

Impact Date	Event
	<p>(however noting it is on track for development mode and that the data seen to date is in line with internal EUR expectations). With much anticipation and increasing investor expectations as to what the ultimate potential of Alpine High may hold, near term catalysts include results from the third and fourth Wolfcamp oil window wells which are currently being completed (results likely a 3QCC event), connection of the 30" gas trunkline to market pipelines allowing for additional takeaway capacity to both Mexico and into Waha Hub by YE17, and additional central processing facilities coming online in August and September. Meanwhile a larger update providing greater clarity as to total resource potential from Alpine High is likely further out.</p> <p>Evercore wrote that the Company's production was "slightly below our/street estimates," "unit costs were above our expectations," and adjusted EBITDA and cash flow missed the analyst's estimates. The analyst commented that the Company's "release brought little in the way of incremental disclosure, and we believe the market was looking for more." Evercore remarked that Alpine High "remains a 'show me' story in the market's eyes":⁹³</p> <p>Steady hands mark the APA approach in a precarious tape Into 2H17, the approach to managing the business at APA remains unchanged. Amid a pullback for the sector throughout 2Q, APA outperformed the broader group (XOP) ~800 bps as a more conservative, (full-cycle) returns-based focus has a certain appeal in a tough tape. Today's release reaffirmed management's keen focus on balance sheet strength and desire to avoid equity dilution regardless of the environment while also underscoring confidence in the asset base and opportunity set (Permian / Alpine High clearly remain at the top of the heap). Today's release brought little in the way of incremental disclosure, and we believe the market was looking for more. While midstream buildout continues ahead of schedule allowing for a ramp in development activity, and APA announced early results from two incremental Wolfcamp wells (one with >1 mboe/d IP30 on 4.5k-ft LL), our view is that the play remains a 'show me' story in the market's eyes and will take more time and data to close the gap between market skepticism and management's confidence. Maintain In Line.</p>

⁹³ Evercore ISI, "Apache, Sticking to its Guns," August 3, 2017, 12:56 PM.

Exhibit 12

Impact Date	Event
	<p>2Q17 Results. APA reported total 2Q17 production of 460 mboe/d (incl. NCI), slightly below our/street estimates of 465/462 mboe/d. Total US volumes of 194 mboe/d also came in below our 196 mboe/d estimate (US oil), while Egypt volumes drove the remainder of the production miss (partially offset by Canada and N. Sea). 2Q17 unit costs were above our expectations with unit LOE and SG&A 4%/5% above our estimates. APA left FY17 LOE guidance unchanged at \$8.50/boe but revised 2Q17 G&A and G&T lower by a combined \$50mm (midpoints, driven by Canada). Thus Adj. EBITDA of \$742mm missed our \$755mm with CFPS of \$1.77 below our \$1.92 (O&G revenues less cash costs per share). APA averaged 35 rigs in 2Q (17 Permian), D&C'ing 66 gross operated wells.</p> <p>What to look for on the call?</p> <p>1) Alpine High: infrastructure buildout, some early oil wells. APA connected 11 new wells to infrastructure and averaged 6 rigs in Alpine High in 2Q, roughly half of which are on restricted flow. Ahead-of-schedule midstream buildout has enabled APA to begin longer-lateral drilling and enhanced completions, with gas production now expected to reach 100 mmcf/d by the end of September. Today APA reported two new Alpine High test wells targeting more oil-rich zones, the first of which reached IP30 >1,000 boe/d on a 4.5k-ft lateral (70% oil). The second Wolfcamp test is currently producing 400 bo/d and is still cleaning up. Expect plenty of focus on the D&C cadence into YE underlying the ramp in gas volumes, balancing continued testing with development in light of newbuild midstream, and outlook for further testing of oil zones. Also look for details on possible timing of a midstream monetization.</p> <p>2) Updated proforma into 2018. Proforma Canada divestitures APA reduced go-forward production guidance by ~50 mboe/d (int'l production guidance unchanged from 1Q). We currently model NAM production of 295 mboe/d in 4Q18 (vs 289-329 mboe/d) but look for more detail on forward gas mix (and AH contribution) and forward budgeting price (APA has indicated \$50/bbl WTI in the past).</p> <p>JP Morgan expected a “Negative” reaction to the Company’s announcement as “the combination of a lower 2017 guide and 5% cash flow miss is poised to weigh on shares.” JP Morgan commented that the Company’s “2H17</p>

Exhibit 12

Impact Date	Event
	<p>[g]uide [was] more back end loaded vs. our expectations.” The analyst added that the Company’s quarterly production was below its estimate and consensus while EBITDAX was above:⁹⁴</p> <p>JPM View: Stock Reaction—Negative. We believe the combination of a lower 2017 guide and 5% cash flow miss is poised to weigh on shares.</p> <p>FY17 Guidance Adjusted for Canada: APA updated its 2017 production guidance for the recent Canada divestiture, with the new guide at 464 MBoe/d (457 – 471 MBoe/d) down 6% from its prior guide at 494 MBoe/d to incorporate the sale. We are published at 474 MBoe/d or 0.6% above the high end of the new guide, but 2.2% above the midpoint. Consensus estimates of 480 MBoe/d were 1.9% and 3.4% above the high-end and midpoints of the new guide. The 2017 capex guide was unchanged at \$3.1 billion.</p> <p>2H17 Guide more back end loaded vs. our expectations: The back-end loaded nature of the 2H17 guide was driven by NaM, with the 4Q17 NaM guide of 231 MBoe/d 1.6% below our JPMe at 235 MBoe/d, but the 3Q17 guide at 211 MBoe/d was 9.7% below JPMe at 234 MBoe/d. International production guidance for 3Q17 dialed in at 151 MBoe/d, 1% below JPMe and the 4Q17 guide of 159 MBoe/d was essentially in line. APA’s 3Q17 total company adjusted production guide of 362 MBoe/d (354 – 370 MBoe/d) was 6% below JPMe at 387 MBoe/d. APA’s 4Q17 total company adjusted production guide of 390 MBoe/d (379 – 401 MBoe/d) was 0.8% below JPMe at 393 MBoe/d.</p> <p>Permian Basin Update: APA’s Permian oil volumes of 71.9 MBo/d fell 4% sequentially. APA brought on line 2 Wolfcamp wells at Alpine High, with one producing 400 Bo/d and still cleaning up. The other well delivered an IP-30 of 1,000 Boe/d, with cumulative production at 37 MBoe (70% oil) over 75 days. On the earnings call, we would look for color on how the decline rate of the new Alpine High Wolfcamp wells compares with a typical Delaware well. In the Northern Delaware, APA brought on line a 5 well Magpie pad in Loving County dialing in IP-30</p>

⁹⁴ JP Morgan, “Apache Corp, 2Q17 Flash - ALERT,” August 3, 2017, 10:27 AM.

Exhibit 12

Impact Date	Event
	<p>rates in excess of 1,000 Boe/d (52% oil). In 2Q17, APA averaged 6 rigs and 2 frac crews in the Midland Basin and brought on line 10 wells in Azalea at average IP-30 of 950 Boe/d (75% oil).</p> <p>International Ops Update: APA brought on line the Callater project (55% WI) ahead of schedule and under budget. Two wells were brought on line at a constrained rate of 19 MBoe/d (70% liquids). 2Q17 North Sea production was impacted by annual scheduled maintenance with 2Q17 volumes dialing in at 54.6 MBoe/d, down 6.4% sequentially. APA averaged 13 rigs in Egypt and completed 25 net wells. APA highlighted the Herunefer West 1X exploration well in Egypt that encountered a basin high pay count of up to 400 ft. and tested the AEB-6 at 5,900 Boe/d and Lower Safa at 4,500 Boe/d.</p> <p>Production: Actual 460 MBoe/d; Street 464 MBoe/d; JPMe 467 MBoe/d; 1Q17 481 MBoe/d.</p> <p>EBITDAX: Actual \$850 MM; Street \$781 MM; JPMe \$790 MM; 1Q17 \$999 MM.</p> <p>Morgan Stanley wrote that the Company's adjusted EPS was lower than its estimate and consensus but adjusted EBITDAX was above both "on higher oil production." The analyst commented that there was "[l]imited incremental disclosure on Alpine High vs. expectations" and "implied production per well appears below expectations." Morgan Stanley added that Apache's production "[g]uidance is largely in line with expectations".⁹⁵</p> <p>APA reports a modest 2Q17 beat on higher oil production but keeps FY17 intact, adjusted for Canada sale. Alpine High update highlights mixed results in the Wolfcamp and gas sales exceeding expectations. Limited incremental disclosure on Alpine High vs. expectations.</p> <p>Modest 2Q17 beat. APA reports adjusted EPS/EBITDAX of (\$0.21)/\$850MM vs. MS of \$0.01/\$838MM and Street's \$0.00/\$812MM. EBITDAX beat vs. MS driven by 2% lower G&T, which was also lowered within the FY17 guide to \$180- 220MM from \$200-250MM. Adjusted production of 388mboed beat the high-end of 376-386Mboed guidance with NA production also at the high-end, but driven by Canada vs. MS. Oil production of 243Mbbl/d also</p>

⁹⁵ Morgan Stanley, "Apache Corp., 2Q17: Disclosure Light," August 3, 2017, 11:03 AM.

Exhibit 12

Impact Date	Event
	<p>slightly above street's 242Mbbl/d, yet steeper than expected sequential oil declines in the Permian (-4% vs. MS' -2%) likely to disappoint.</p> <p>Mixed Alpine High well results: gas sales exceeding expectations; yet implied production per well appears below expectations. Results from APA's initial horizontal Wolfcamp target in Alpine High were largely mixed and incremental color was limited (expect color and volatility around call). Wolfcamp #1 averaged a strong normalized 30-day IP of 1,000 Boe/d (~70% oil) from a short 4,500' lateral, with cumulative production of ~37Mbo over 75 days tracking a ~450Mboe EUR, which is largely in line with normalized production seen in the early days of the southern Delaware Wolfcamp (a reasonable comparison). Given completions are likely not fully optimized, this is an encouraging first well in a new resource play. The second well; however, is producing at only ~400bbl/d and continues to clean up, a reminder of the inconsistency of the play and thinner structure of the Wolfcamp in Alpine high. No other well result details on the Alpine High and all stand-alone slides were removed from the slide deck as APA folds operations into the overall Delaware Basin potentially indicating less future transparency. As previously announced, gas infrastructure connection was ahead of schedule allowing APA to achieve 50MMcfd first production in early May, exceeding its June 30 target for processed gas. Current net sales gas exceeds 60MMcfd and is expected to increase to more than 100MMcfd by the end of September. However, at 60MMcfd from 15 wells connected into infrastructure today implies only 4MMcfd per well, yet APA notes 45% of connected wells are on constrained flow, so challenging to evaluate.</p> <p>FY17 guidance updated for Canada divestitures, unchanged pro forma. APA lowers production guidance to 457-471Mboed from 485-503Mboed to true-up for Canada divestiture. Guidance is largely in line with expectations given cons at 474Mboed is likely stale. The 4Q18 guidance is also adjusted to reflect the sale. Capex unchanged at \$3.1Bn given all Canadian capex will be spent before the deal closes; however, APA indicates \$125MM of planned capex elimination in 2018 as a result of the sale. Pro forma 3Q17 guide lowered by ~1Mboed at the midpoint.</p>

Exhibit 12

Impact Date	Event
	<p>RBC wrote that the Company’s EPS and CFPS were below its estimates and consensus while production was “slightly above” the analyst’s estimate. The analyst commented that Apache’s “earnings miss is related to a dry-hole cost and lower oil price realizations”.⁹⁶</p> <p>Our View: Earnings were light but we expect more focus on the recent Alpine High oil wells that looked good. A Wolfcamp well averaged 1,000 boe/d (70% oil) over 30-days and another is producing 400 Mb/d (oil) and still cleaning up.</p> <p>2Q17 recurring EPS/CFPS of (\$0.21)/\$1.57 was below our \$0.04/\$1.70 and the (\$0.01)/\$1.67 Consensus estimates. Adjusted production of 388 Mboe/d (51% oil) was slightly above our 386 Mboe/d (51% oil) model. Higher North Sea, Egypt, and Canada volumes offset lower than expected Permian production. The earnings miss is related to a dry-hole cost and lower oil price realizations.</p> <p>2017 Guidance Capital expenditure of \$3.1 billion remain unchanged. Cost guidance was reduced but that could be associated with the Canada divestiture. FY17 production of 352-363 Mboe/d is consistent with its prior outlook and adjusted for the Canada sale.</p> <p>Scotia wrote that that “APA reported a sizeable EPS miss but an EBITDA beat” with the “EPS miss vs our estimate ... due to higher cash costs and exploration expense.” The analyst cautioned that the Company’s “production guidance was adjusted for the recent exit of Canada, and we view the update as a net negative”.⁹⁷</p> <p>QUICK TAKE: APA reported a sizeable EPS miss but an EBITDA beat, a more important measure, in our opinion. However, the operational update could be best described as in line with expectations, with the possible exception of the Alpine High oil results. Further, production</p>

⁹⁶ RBC Capital Markets, “APA - 2Q17 Earnings Miss; Focus Will be More Alpine High Oil Wells,” August 3, 2017, 8:59 AM.

⁹⁷ Scotia Howard Weil, “Apache Corporation, 2Q17 Results: EBITDA Beat but Guidance Unimpressive,” August 3, 2017, 10:44 AM.

Exhibit 12

Impact Date	Event
	<p>guidance was adjusted for the recent exit of Canada, and we view the update as a net negative, even with the associated liquidity bump from the sale. We continue to find better ways to play the Permian, and maintain our Sector Perform rating.</p> <p>KEY POINTS</p> <p>Financials: APA reported 2Q17 EPS of (\$0.21) versus SHW of (\$0.02) and consensus of (\$0.01). Adjusted EBITDA of \$850MM beat our estimate of \$805MM and consensus of \$800MM. The EPS miss vs our estimate was due to higher cash costs and exploration expense.</p> <p>Guidance: With the Canadian divestiture, total reported production moves to 464 MBoe/d from 494 Mboe/d at the midpoint. NAM (ex. Canada) and international adjusted production remains unchanged, as does FY17 CAPEX of \$3.1B. Gathering and G&A move down \$25MM as well.</p> <p>Permian Update: APA operated 17 total rigs in the Midland and Delaware Basin in 2Q17. While details were minimal with the release, APA brought online 10 wells in the Midland Basin with an average 30-day rate of 950 Boe/d (75% oil, 183 Boe per lateral foot). In Loving County, APA brought online five wells with an average 30-day rate of +1,000 Boe/ d (52% oil).</p> <p>Alpine High Infrastructure Online: The company now has 35 miles of 30-inch gas trunkline and two centralized processing facilities operational at Alpine High. This has allowed the company to connect 45% of its wells drilled on constrained flow. APA will continue to build out its infrastructure and midstream with over \$1B in spend over the next 2 years.</p> <p>Alpine High Oil Well Impresses: APA brought online 2 Wolfcamp wells in the Alpine High play this quarter. The first well averaged over 1,000 Boe/d (70% oil) from only a 4,500' lateral and has now produced 37 MBoe over 75 days. The second Wolfcamp well is currently producing 400 Boe/d and still cleaning up. We will look for more information on the call to its potential footprint and repeatability.</p> <p>Societe Generale wrote that the Company's adjusted EPS and DCFPS were short of its estimates and consensus but the analyst was "not disappointed by the 2Q17 EPS miss, as we believe APA's management team is progressing its</p>

Exhibit 12

Impact Date	Event
	<p>long term business plan by focusing on balance growth and project returns.” The analyst remarked that “it has been a ‘sell the news’ market, and APA missed today”:⁹⁸</p> <p>2Q17 Adjusted EPS/DCFPS (discretionary cash flow per share after common stock dividends) of \$(0.21)/\$1.32 were worse than SGe of \$0.00/\$1.46 and the Street’s \$0.06/\$1.55. Reported 2Q17 EPS was \$1.50/share, mainly because of positive deferred tax adjustments related to APA’s exit from Canada. BOE output from ongoing operations (sans Canada) of 387.5MBOE/d was down 3% QOQ. Versus our model, UK output was lower, we believe because of early facility turnaround related to the two Callater well subsea tie-ins, and we note that US output in 2Q17 was lower. Unit costs met our expectations with the exception of exploration expenses, which had higher dry hole costs. Cash flow before working capital changes and stock dividends of \$507MM was down about 18% given lower product prices and volumes, and under the \$646MM of net Upstream and GTP expenditures. But we assume that there are seasonal and transactional items that added noise to the cash flow generated QOQ. Even so, the QOQ cash position rose \$146MM to \$1.67 billion (\$4.35/share or 9% of the stock price). As noted in the 2Q17 release and operations supplement, 2Q17 output was at the low for the year, and now will grow strongly through year end from US activity (oil and Alpine High gas) and internationally in the UK with Callater, which was initially constrained in 2Q17, and Beryl, which started in May. In 4Q17, projected output, adjusted for the exit from Canada, should be up 15% vs 2Q17.</p> <p>SG view</p> <p>Lately, it has been a ‘sell the news’ market, and APA missed today. We recognize that the Street has focused on short cycle Permian shale activity, and note that the Alpine High, which is in the Delaware, does not have traditional ‘shale peer data points’, meaningful initial gas leverage as a consequence of HBP acreage lockup and expenditure commitments. In the Permian, versus 2Q17, there was no change to Midland basin activity (six rigs and two frac crews), but two rigs were added to the Delaware. Eleven wells were connected to APA infrastructure at the Alpine High, but were facility constrained. More importantly, two ‘parasequence tests’ found 42 to 44</p>

⁹⁸ Societe Generale, “Apache Corp, An adjusted miss. No change to \$3.1 billion 2017 capex, but strong 2H17 output growth expected.,” August 3, 2017, 1:20 PM.

Exhibit 12

Impact Date	Event
	<p>degree oil. The Wolfcamp #1 averaged a IP-30 of 1MBBOE/d and was 70% oil, the number 2 is still cleaning up, and the Magpie pad had IP 30 rates of 1MBOE/d (50% oil). There was no post mortem for wells discussed in the 1Q17 operations report, which really were test wells. Internationally, Egypt was on plan and the North Sea will have higher flow Callater subsea tiebacks in 3Q17. In terms of projected costs, LOE is unchanged, gathering and transmission and G&A are lower, but DD&A is rising nominally (+2%). APA has added meaningful natural gas swaps for 2H17 and, more importantly, 2018 natural gas volumes (150MMcf/d at \$3.39/Mcf), which we believe are related to the Alpine High.</p> <p>We are not disappointed by the 2Q17 EPS miss, as we believe APA's management team is progressing its long term business plan by focusing on balance growth and project returns. APA's management plans to end 2017 with more cash, less debt and higher Permian output, without diluting shareholders to achieve its business plan.</p> <p>Wells Fargo wrote that the Company had a “down the middle quarter” as adjusted EPS missed its estimate and consensus while EBITDAX beat on both, and “both operating cash flow and capex [were] in-line with expectations.” The analyst commented that the Company's production and capex guidance was “[m]aintained”.⁹⁹</p> <p>Takeaway: Neutral. Some pro forma noise on the quarter with divested Canada volumes, but guidance largely unchanged across the rest of the portfolio. Pro forma volumes (excl. tax and noncontrolling barrels) slightly ahead of our estimate with crude essentially inline though Permian volumes down sequentially. An encouraging Alpine High Wolfcamp well highlights oil window potential. Spent within cash flow and both operating cash flow and capex in-line with expectations. Overall, down the middle quarter.</p> <p>Key Points Production (pro forma) In-Line. Total of 388 Mboe/d vs. our 386 Mboe/d. Crude a little light at 197 Mbbl/d compared to our 200 Mbbl/d with the miss driven by Permian vs. us. Gas at 824</p>

⁹⁹ Wells Fargo, “APA: Quarter In-Line,” August 3, 2017.

Exhibit 12

Impact Date	Event
	<p>MMcf/d compared to our 831 MMcf/d. NGLs drive the slight beat at 53 Mbbls/d compared to our 48 Mbbls/d.</p> <p>Prod'n/Capex Maintained. New 2017 guidance adjusted for Canada essentially unchanged at 352-363 Mboe/d on a pro forma basis. International volumes unchanged. \$3.1B capex plan maintained with Canada capex being reallocated. Spending for the quarter was \$738MM which was inline with our \$750MM and operating cash flow of \$751MM (pre-dividend).</p> <p>Operations/Other. Permian: Alpine High (AH) achieved first production in May and net sales in excess of 60 MMcfe/d headed to 100MMcfe/d+ by 3Q end. Drilled 2 Wolfcamp wells in oil window, one of which had a 30day IP above 1,00 boe/d (4500' lateral). Street likely to press company for other result. Total 17 rigs in basin, with 6 at AH, 6 in Midland. Egypt: 2 high-rate exploration wells; new concessions expected to increase Western Desert acreage by 40%. North Sea: 55 Mboe/d versus 58 Mboe/d in 1Q on planned maintenance. '18x' discovery flowing back at constrained 19,000 boe/d.</p> <p>EPS Miss/EBITDAX Beat. Adjusted EPS of -\$0.21 vs. us/consensus of \$ 0.10/\$0.00 driven by higher exploration expense. Adj. EBITDAX of \$850MM beat our \$760MM and Street \$775MM.</p> <p>Conference Call Focus: Alpine High wells, Canada divestiture, Midland GoR. Details: Thursday (8/3), 2:00pm ET. 8888301024 #48382280</p> <p>News coverage attributed the decrease in the Company's stock price on August 3, 2017 to its earnings announcement.¹⁰⁰</p> <p>Following the Company's disclosures on August 3, 2017, according to Bloomberg, the average of analysts' price targets for Apache stock decreased to \$51.66 from \$52.03, or -0.73%. All 33 analysts who published investment</p>

¹⁰⁰ See, e.g., *Seeking Alpha*, "Apache -5% on wider than expected Q2 loss, reduced production guidance," August 3, 2017, 11:25 AM.

Exhibit 12

Impact Date	Event
	<p>ratings for the Company both before and after the earnings announcement maintained their ratings. (<i>See</i> Exhibit 5C.)</p> <p>Remark: Given that: (i) the Company reported adjusted EPS below consensus and adjusted EBITDAX above, while the “2017/4Q18 outlook was unchanged”;¹⁰¹ and (ii) there was “[l]imited incremental disclosure on Alpine High vs. expectations,”¹⁰² the statistically significant Company-specific stock price decline on August 3, 2017 is consistent with that expected in an efficient market.</p>
11/2/2017	<p>Before market open on Thursday, November 2, 2017, the Company announced its third-quarter 2017 financial results. For the quarter, Apache reported production of 448 mboe/d, revenue of \$1.39 billion, EPS of \$0.16, and adjusted EPS of \$0.04.¹⁰³ Apache had released a corporate update and “Alpine High Review” after the close of trading on October 9, 2017.^{104, 105}</p> <p>The consensus estimates of the Company’s quarterly revenue and adjusted EPS loss were \$1.39 billion and -\$0.01, respectively.¹⁰⁶</p>

¹⁰¹ BMO Capital Markets, “Apache, 2Q Production at High-End, But Permian Oil Light; Alpine High Ramp Continues,” August 3, 2017, 8:54 AM. *See also, e.g.*, Barclays, “Apache Corp., APA’s Q2 Volumes Fell as the Co. Suffers a Hangover from 2016’s Reduced Cap-ex,” August 7, 2017, 12:10 AM; Morgan Stanley, “Apache Corp., 2Q17: Disclosure Light,” August 3, 2017, 11:03 AM; Wells Fargo, “APA: Quarter In-Line,” August 3, 2017.

¹⁰² Morgan Stanley, “Apache Corp., 2Q17: Disclosure Light,” August 3, 2017, 11:03 AM. *See also, e.g.*, Cowen and Company, “Apache Corporation, 2Q17 Earnings at a Glance,” August 3, 2017. *See also, e.g.*, Deutsche Bank, “Apache Corp., High On The Alpine,” August 3, 2017, 11:30 PM; Evercore ISI, “Apache, Sticking to its Guns,” August 3, 2017, 12:56 PM.

¹⁰³ Apache News Release, “Apache Corporation announces third-quarter 2017 financial and operational results,” November 2, 2017. *See also* GlobeNewswire, “Apache Corporation Releases Third Quarter 2017 Financial and Operational Results,” November 2, 2017, 8:00 AM.

¹⁰⁴ Apache News Release, “Apache Corporation to Post Corporate Update and Alpine High Review on Website Today at 4:30 p.m. CT,” October 9, 2017.

¹⁰⁵ On October 10, 2017, there was a statistically significant Company-specific stock price decline.

¹⁰⁶ *TheFlyontheWall.com*, “Apache reports Q3 adjusted EPS 4c, consensus (1c),” November 2, 2017.

Exhibit 12

Impact Date	Event
	<p>John J. Christmann IV, Apache's chief executive officer and president, commented on the Company's results and updated guidance.¹⁰⁷</p> <p>During the third quarter, Apache delivered strong operational results and made great progress in our ongoing portfolio transition. In the United States, we returned our production to a growth trajectory and advanced our development program at Alpine High bringing new wells online, ramping up production, and further progressing our build out of infrastructure in the area.</p> <p>Across the Permian Basin, we are benefiting from the testing and optimization initiatives we put in place during 2016 and are delivering excellent results from our multiwell pad drilling programs in the Midland and Delaware basins. We anticipate continued capital efficiency gains in both of these focus areas.</p> <p>With our recent Canadian divestment, our portfolio is now increasingly weighted to our Permian assets including Alpine High, which offers a unique combination of high returns and tremendous scale. This portfolio rotation is a key step in transforming Apache's long-term return on capital employed</p> <p>***</p> <p>We continue to benefit from our cost structure focus, with both LOE per BOE and G&A costs remaining low as a result of the significant rationalization efforts over the last two years. Our capital investment is in line with our target for 2017, and we are actively working our 2018 and 2019 plans. We are closely monitoring commodity prices as we prioritize next year's activity and identify areas where the capital program could be pared back if necessary. We look forwarding to providing details of our 2018 plan along with a view into 2019 on our fourth-quarter results call in February</p>

¹⁰⁷ Apache News Release, "Apache Corporation announces third-quarter 2017 financial and operational results," November 2, 2017.

Exhibit 12

Impact Date	Event
	<p>The Company also announced that it was maintaining the guidance it had updated on October 9, 2017.¹⁰⁸</p> <p>The Company held a conference call with investment analysts the same day.¹⁰⁹</p> <p>Bank of America Merrill Lynch wrote that the Company’s EBITDAX was “in line” but EPS and CFPS topped the consensus estimate “with the beat primarily lower tax and to a lesser extent on DD&A.” The analyst also noted that the Company’s “[o]il and gas production was essentially in line with updated guidance”:¹¹⁰</p> <p>EPS beat estimates on lower tax and DD&A APA announced adj an EPS/CFPS beat of \$0.04/\$1.72 vs consensus of (\$0.021)/\$1.68 and BofAMLe of (\$0.16)/\$1.82. EBITDAX of \$821mm was in line (consensus \$825mm), with the beat primarily lower tax and to a lesser extent on DD&A. Note the results come after several previously announced results related to Hurricane Harvey, including lowered 3Q production guidance at Alpine High due to deferred natural gas production. However international production was also impacted by extended North Sea turnarounds, which cut production (4-8mboepd). Reported earnings included a loss related on derivatives (- \$27mm) and dry hole costs (-\$38mm) including what looks like Alpine high acreage write off). Oil and gas production was essentially in line with updated guidance, with North America ex Canada of 207mboepd vs. 206-208mboepd guidance provided on Oct. 10th.</p> <p>Look for more color on 2018 capex plan</p>

¹⁰⁸ Apache News Release, “Third-Quarter 2017, Financial and Operational Supplement,” November 2, 2017. *See also Thomson Reuters, StreetEvents*, “APA – Apache Corp Corporate Update and Alpine High Review, EVENT DATE/TIME: OCTOBER 9, 2017 / 9:30PM GMT,” October 9, 2017, 5:30 PM.

¹⁰⁹ *Thomson Reuters, StreetEvents*, “APA – Q3 2017 Apache Corp Earnings Call, EVENT DATE/TIME: NOVEMBER 2, 2017 / 6:00PM GMT,” November 2, 2017, 2:00 PM.

¹¹⁰ Bank of America Merrill Lynch, “Apache Corp, 3Q17 First look: EPS beats on tax – focus on 2018-2019 activity levels,” November 2, 2017, 10:35 AM.

Exhibit 12

Impact Date	Event
	<p>APA provided an early indication of its 2018 capex plan, which looked similar to 2017 (\$3.1bn each) - but the emphasis is that this is early. By our estimates this would represent a \$500mm outspend at \$55WTI which is largely Alpine High infrastructure that we expect ultimately to be monetized. However commentary suggests management is still evaluating capex plans not only to alleviate the outspend but also to include lower price assumptions to in order to bridge the cashflow spending gap that currently stands at \$350-\$400 for every \$5 change in oil prices. It is unclear how activity levels will change for 2018 but assuming that infrastructure spending is a necessity to grow its Alpine High production meaningfully, we expect the impact will come at the expense of E&P development. With WTI currently trading at \$54/bbls, we don't expect meaningful revisions to capex noting any outspend could be offset by non-core asset sales as has been indicated by management.</p> <p>Alpine High ramp-up continues Apache has previously disclosed key updates at its Alpine High appraisal efforts, which we viewed as mixed with a viable wet gas play but a non-uniform oil play. Location count was increased from 3,000 to 5,000 on concept tests that proved an upside, but only 500 of the locations are oil. The company's type curve was confirmed with an EUR of 13.3bcfe vs our assumed type curve of 16bcfe prior to any announcements. With management providing a much needed transparency on operational risk at Alpine High a focus on faulting and water production, suggests some of the acreage would be allowed to expire - likely the lease impairment included in this quarter's results. During the quarter, production of 13,300boepd with 6 rigs at Alpine high is expected to exit 2017 with 25,000boepd.</p> <p>Maintain Underperform Our Underperform rating on APA reflects uncertainty around the scale, timing and cashflow impact of accelerating gas production in the Permian. While increased disclosure is welcomed, the skew towards gas from oil remains the headwind we expect to keep incremental DACF per share growth lagging peers.</p> <p>Barclays "expect[ed] fundamental investors to have a neutral to negative reaction to Apache's 3Q results" as the Company "missed [the analyst's] liquids production estimates but reiterated its 2017 capital budget and its 4Q</p>

Exhibit 12

Impact Date	Event
	<p>volume targets.” The analyst noted that the Company’s adjusted EPS was above the analyst’s estimate and consensus while CFPS was short of consensus but beat its estimate. Barclays commented that there was “[n]othing noteworthy to report on Alpine High”.¹¹¹</p> <p>We expect fundamental investors to have a neutral to negative reaction to Apache’s 3Q results. The company missed our liquids production estimates but reiterated its 2017 capital budget and its 4Q volume targets. Nothing noteworthy to report on Alpine High – Apache just provided an update for the asset on October 9th.</p> <p>APA is on track to spend its 2017 capital budget and expects to deliver its 4Q production targets. The company still expects to spend \$3.1 billion in capital this year. 4Q production guidance calls for 7% higher volumes in North America, adjusted for the Canada sale, and 5% higher international production, adjusted for Egypt tax barrels and non-controlling interest. All of Apache’s income statement guidance for 2017 remains unchanged.</p> <p>Nothing noteworthy to report on Alpine High. Apache just provided an update for the asset on October 9th. See our report: APA – Lower Production Guidance Likely to Outweigh the Progress Made in Alpine High, 10/10/17. Alpine High produced 13.3 mboepd during 3Q and anticipates a 2017 exit rate of 25 mboepd.</p> <p>APA returned its production to growth during 3Q but missed our liquids forecasts. US oil was reported 1% below our estimates and US NGLs were 8% below our estimates.</p> <p>APA averaged 36 rigs worldwide during 3Q, with close to half in the Permian. The company ran 17 rigs in the Permian (6 in Alpine High), 12 in Egypt, 4 in other North America areas, and 3 in the North Sea.</p>

¹¹¹ Barclays, “Apache Corp., APA Misses Q3 Liquids Volume Estimates, Reiterates 4Q Targets and 2017 Capital Budget,” November 2, 2017, 9:15 AM.

Exhibit 12

Impact Date	Event
	<p>“Clean” EPS of \$0.04 exceeded our \$(0.05) estimate and consensus of \$(0.01). CFPS came in at \$1.71, above our \$1.65 estimate but below the Street’s \$1.75 forecast. Liquids production missed estimates while gas volumes were slightly higher than expected. Realized prices were above our forecasts across the board, with NGLs 24% higher than forecast. Costs were lower than expected in most categories except for G&A and production taxes which were higher than forecast.</p> <p>Adjusted net earnings of \$14 million included the following non-recurring adjustments: 1) \$219 gain on divestitures, 2) \$104 million of asset impairments, 3) \$54 million unrealized derivative instrument loss, 4) \$13 million of transaction, reorganization and separation costs, and 5) \$1 million of valuation allowance and other tax adjustments.</p> <p>Barclays, in a later report, added that “Apache indicated 2018 capex could be similar or slightly lower than 2017.” The analyst maintained its rating and price target for the Company.¹¹²</p> <p>Apache returned to production growth during 3Q, as planned, but missed our liquids volume forecast, with US oil 1 % below our estimates and US NGLs 8% lower than our forecast. The company reiterated its 4Q production targets that it had updated on October 9th. There was nothing noteworthy to report on Alpine High as Apache had provided an update for the asset a few weeks ago. Apache indicated 2018 capex could be similar or slightly lower than 2017. We remain Underweight. Our sum-of-the parts value and price target are \$26 per share.</p> <p>APA reiterated its 2017 capital budget and 4Q production targets. The company still expects to spend \$3.1 billion in capital this year. 4Q production guidance calls for 7% higher volumes in North America, adjusted for the Canada sale, and 5% higher international production, adjusted for Egypt tax barrels and non-controlling interest.</p> <p>2018 capex could be similar to 2017 or slightly lower. Apache’s plan to spend - \$800 million internationally and \$500 million on its Alpine High midstream is unchanged. The company said</p>

¹¹² Barclays, “Apache Corp., Apache Returns to Growth,” November 6, 2017, 1:10 AM.

Exhibit 12

Impact Date	Event
	<p>it has flexibility with its Permian budget to possibly scale back slightly. We maintain our 2018 estimate for total capex of -\$2.9 billion.</p> <p>Apache provided an update on Alpine High on October 9th. See our report: APA - Lower Production Guidance Likely to Outweigh the Progress Made in Alpine High, 10/10/17. Alpine High produced 13.3 mboepd during 3Q and anticipates a 2017 exit rate of 25 mboepd.</p> <p>APA trades at a 5% discount to peers on 2019E PICF, despite a large share of international assets. We estimate that -60% of 2017E cash flow is derived from low-multiple international assets. We expect APA will earn corporate returns that will lag peers by in 2017 through 2019.</p> <p>BMO wrote that the Company's "3Q results offered few surprises following its early October update, but Permian oil was slightly better than our expectations, while Egypt gross production was better than expected." BMO noted that there was "[n]ot much incremental in terms of operational details." The analyst observed that the Company's adjusted EPS was lower than its estimates but higher than consensus while EBITDAX topped both, and cash flow before working capital was short of the analyst's estimate".¹¹³</p> <p>Bottom Line: Apache's 3Q results offered few surprises following its early October update, but Permian oil was slightly better than our expectations, while Egypt gross production was better than expected given negative 2H17 guidance revisions (PSC impact). EBITDAX was slightly higher, offset by lower CFO, while capex was below our model. Not much incremental in terms of operational details, and Apache will provide 2018 detailed guidance and a view into 2019 on its 4Q17 call in February.</p> <p>Key Points Few Surprises in 3Q Following Pre-Announcement. Apache reported 3Q17 EPS of \$0.04, compared to our/consensus \$0.10/- \$0.04 estimates. EBITDAX of \$821mm was above our \$814mm, while consensus was \$751mm, but CFO (before working capital) of \$655mm was below our \$708mm. Oil and NGL realizations were better, offset by lower natural gas. O&G</p>

¹¹³ BMO Capital Markets, "Apache, Few Surprises in 3Q Following October Update," November 2, 2017, 8:55 AM.

Exhibit 12

Impact Date	Event
	<p>capital investment of \$843mm was below our \$872mm as higher Permian (+\$39mm) and Mid-Con (+\$29mm; 4 Non-Permian NAM rigs) spending offset lower Egypt (-\$34mm) and North Sea (-\$51mm) capex.</p> <p>Permian Oil Slightly Better Than Our Estimate. Production of 448MBoe/d included Canada, while NAM of 207MBoe/d and International of 146MBoe/d were in line with pre-announced ranges of 206-208MBoe/d and 146-148MBoe/d, respectively. NAM oil of 94MBo/d beat our 91MBo/d, driven by Canada closing (+1.5MBo/d) and Permian (+1.5MBo/d), while lower Egypt oil (-4MBo/d) resulted in total (238MBo/d) being in line with our estimate (consensus was 245MBo/d). Egypt was a reason for the 2H17 guidance reduction (PSC impact), but gross volumes of 339MBoe/d (up 1.4% Q/Q; oil up 3% Q/Q) were strong. Alpine High production averaged 80MMcfe/d in 3Q, while anticipated to exit YE2017 at 100MBoe/d.</p> <p>Revisiting Alpine High a Year Later. Following Apache's operational update and Alpine High review in early October, we reviewed publicly available production data for the play and updated our assumptions based on new disclosure. We found a high variability of results, but excluding concept wells, the average wet gas well is performing in line with the Utica/STACK (2016-17 vintage) after six months, while the average dry gas well is performing in line with the SCOOP/Marcellus after four months. That said, a wide distribution of results exists across all shale plays, so we think greater consistency is needed for Apache to receive more credit, in addition to greater investor certainty around regional (Waha) pricing.</p> <p>Cowen wrote that the Company's "3Q17 total production [was] slightly below our estimate and the street's" and "shows the changing gassier mix from Alpine High ramp in our view." The analyst predicted that Apache's "unchanged 4Q17, 2018 guidance will leave investors on the sidelines in our view".¹¹⁴</p> <p>Slightly Negative. 3Q17 production miss on downward revision and unchanged 4Q17, 2018 guidance will leave investors on the sidelines in our view. 3Q17 oil production miss shows the changing gassier mix from Alpine High ramp in our view.</p>

¹¹⁴ Cowen and Company, "Apache Corporation, 3Q17 Earnings at a Glance," November 2, 2017.

Exhibit 12

Impact Date	Event
	<p>Stock Thoughts</p> <p>3Q17 total production slightly below our estimate and the street's. Oil production misses. EBITDAX and adjusted EPS beat. Alpine High production appears light, possibly due to well timing. Guidance is unchanged from the detailed update the company provided in October. We expect investors will want details on Alpine High's near-term development and well cadence and additional details on the Midland Basin pads recently brought online.</p> <p>What to Expect on the Call</p> <p>Midland Basin: During the quarter, APA brought online three pads in the Southern Midland Basin: June Tippet 1213, a 7 well pad targeting the Lower Spraberry and Wolfcamp B, Lynch A, a 6 well pad targeting the Lower Spraberry, and CC 4045, a 6 well pad targeting the Wolfcamp B1/B3. The average 30-day IP well average for these pads ranged between 1,058 - 1,379 boe/pd with an 80 - 85% oil cut. We expect the company to provide more details on these wells, such as completion methodology/cost, and spacing, and the results of any testing that was performed.</p> <p>Alpine High: The company averaged 13.3 Mboe/d during the 3Q in Alpine High; they anticipate a 2017 exit rate of 25 Mboe/d. Both figures are lower than what we had forecasted, given the 6 rigs and 3 frac crews in the region. We expect the company to discuss the cadence at which it plans to bring wells online on the call.</p> <p>Guidance Highlights</p> <p>4Q17 North America and International production guidance remains unchanged at 218 - 224 Mboe/d and 150 - 156 Mboe/d, respectively. Total reported production guidance, adjusting for divested assets, Egypt tax barrel, and NCIs also unchanged at 368 - 380 Mboe/d.</p> <p>FY17 capex guidance unchanged at \$3,100MM (\$2,350MM N. America and \$750MM International).</p>

Exhibit 12

Impact Date	Event
	<p>FY17 guidance for other income statement items (LOE/boe, G&T, G&A, net interest expense, exploration expense, DD&A/boe, and cash taxes) remain unchanged from the most recent update given in October.</p> <p>APA is currently working on its 2018 plan; they plan to reveal it and a 2019 view during their 4Q17 earnings in February 2018.</p> <p>Deutsche Bank wrote that the Company's "[n]on-cash EPS beat and inline volumes leave little changed from Alpine High update" in October, resulting in "more of a business as usual feel as compared to the volatility normally associated with earnings." The analyst noted that the adjusted EPS beat of its estimate and consensus was "largely driven by a DD&A beat ..., with help from modest price realizations ahead our estimates".¹¹⁵</p> <p>Non-cash EPS beat and inline volumes leave little changed from Alpine High update Having derisked the quarter as part of its Alpine High update in October (3Q volumes inline with adjusted guidance), APA's 3Q17 result had more of a business as usual feel as compared to the volatility normally associated with earnings. The Alpine High structured outspend remains the story (\$500 mm in 2018 at \$55 WTI), though the company highlighted its ability to flex its budget (Midland Basin rigs as the spend inflection) if needed in 2018. While spending optionality offers the ability to adapt to temperamental commodity markets, the challenges along the path to FCF generation keep us on the sideline. HOLD. Positives: Realization (+ \$0.70/boe) beat, 3 rigs rolling off Mid-Con HBP activity by YE17, Midland Basin pad well performance (~1200 boe/d for 21 wells). Negatives: Lack of visibility into 2018 production growth, EPS beat largely non-cash driven (DD&A +\$1.10/boe).</p> <p>Key Call Takeaways: Permian/Growth: Incremental updates were limited following the Alpine High update in October, though total Permian volumes grew 10% q/q (oil vols +6 mb/d) driven by continued performance from the Southern Midland Basin (21 wells avg ~1200 boe/d 30 day rates) in the Lower Spraberry and Wolfcamp B. The play will likely serve as the fulcrum for 2018 activity</p>

¹¹⁵ Deutsche Bank, "Apache Corp., Same Story, Different Day," November 2, 2017, 6:21 PM.

Exhibit 12

Impact Date	Event
	<p>levels as a function of oil prices. APA is running 4 rigs in the play currently, and has 3 rigs in OK that will roll of by YE17 following HBP drilling. We see modest downward pressure to consensus implied 14% growth on a gross basis vs. our 16% growth (net basis; smaller base) that assumes a 5 rig program in the oilier Permian (assuming \$51/\$54 WTI/ Brent in 2018). APA announced that official guidance won't come until its next call in February.</p> <p>Funding Outlook/Return: With oil prices at YTD highs, the outlook for pricing into 2018 is looking more attractive, particularly for APA with leverage to Brent (North Sea, Egypt). The bullish environment potentially reduces the company's need to monetize its Alpine High midstream assets (and keep supply chain value in-house), or alternatively, presents increased optionality around shareholder return options ahead of/into 2019, when midstream capital spend decreases (\$500 mm in 2017 and 2018), leading to an overall capex decrease. We view this scenario as an optimistic outcome as it comes with hurdles and risks between now and then, and comes with risks (execution of infrastructure build-out and well completion, Waha basis pricing risk). We'd prefer oil-driven, cash flow neutral options ahead of APA, though of names with a structured outspend over the next 18-24 months, APA's might have a shorter time horizon than others to achieve shareholder return.</p> <p>3Q Results: Adj EPS of \$0.04/sh beat our/consensus adj. loss ests. (\$0.04)/(\$0.03) largely driven by a DD&A beat (\$1.09/boe), with help from modest price realizations ahead our estimates (\$0.70/boe), as volumes were inline with the company's post-Harvey update in October. Details within.</p> <p>Evercore wrote that the Company's production was "slightly below our/street estimates," adjusted EBITDAX beat the analyst's estimate, and CFPS was "essentially inline." The analyst commented that, for Alpine High, "visibility remains a challenge, particularly relative to the return opportunity available elsewhere in the onshore focused peers".¹¹⁶</p> <p>Market still digesting Oct Alpine high update, increasingly important for the outlook</p>

¹¹⁶ Evercore ISI, "Apache, A Very In-Line Quarter," November 2, 2017, 11:04 AM.

Exhibit 12

Impact Date	Event
	<p>APA has made its bet. Alpine High is undoubtedly a unique asset with certain challenges, foremost of which is investor education and delivering on the return and future volume growth promises. A different tact in an industry that has largely chased similar strategies of bulking up in onshore brand name resource plays. APA's unique position in Alpine High has importantly allowed for the capture of more of the potential value chain (minerals to midstream). Delivering on the ~25 mboe/d exit rate guidance from the play (re-confirmed at 3Q results) remains key as APA completes initial gathering and processing facilities. 2018 promises more clarity on volume and cash flow growth from the play as the portfolio shift (exiting non-core) which has been executed in a balance sheet neutral manner with a potential midstream monetization still ahead. We respect the different strategic tact adopted by APA which could deliver differentiated returns, however visibility remains a challenge, particularly relative to the return opportunity available elsewhere in the onshore focused peers. Considering the strengthening price backdrop, the absolute commodity leverage of APAs legacy asset base (particularly Brent) is worth highlighting, as \$5/bbl in oil price accounts for a \$350-400 mm swing in 2018 cash flows. Maintain In Line.</p> <p>3Q17 Results. APA reported total 3Q17 production of 448 mboe/d (incl. NCI), slightly below our/street estimates of 457/450 mboe/d. Total US volumes of 207 mboe/d were inline with our 207 mboe/d estimate (US oil at 91 mbpd vs our 90), while gross Egypt and N. Sea volumes came in below our estimates. 3Q17 unit costs were better than our expectations with unit LOE and SG&A 4%/7% below our estimates. APA left FY17 production, capital, and expense guidance unchanged. Thus Adj. EBITDAX of \$821mm exceeded our \$787mm while CFPS of \$2.02 was essentially inline with our \$2.03 (O&G revenues less cash costs per share). APA averaged 36 rigs in 3Q (17 Permian).</p> <p>What to look for on the call?</p> <p>1) 2018 framework already outlined, details welcome. APA provided a first look at the 2018 plan last month with its October Alpine High update. Look for any incremental details surrounding the \$3.1 Bn baseline program (which assumes \$55/bbl WTI and \$3/mcf HH). 2017 will likely see ~\$600mm of upstream outspend (organic upstream FCF neutrality expected next year) with further non-core asset sales, potential midstream monetization, and leverage to</p>

Exhibit 12

Impact Date	Event
	<p>commodity upside (~\$350- \$400mm incremental cash flow per \$5/bbl move in WTI) all possible vehicles to fund an anticipated \$500mm Alpine High infrastructure spend next year.</p> <p>2) Infrastructure buildout at Alpine High. APA's October update noted plans for 5 CPFs online by YE amounting to 330mmcf/d of processing capacity. As of early October, plans called for CPF #4 to be online by midmonth, adding 50 mmcf/d inlet capacity. Timely startup of the Hidalgo plant (pushed from 3Q to 4Q due to Harvey-related delays) underpins APA's outlook for exit rate production from AH and the runway into next year.</p> <p>Jefferies wrote that "APA reported an EPS beat on largely in-line production volumes" though the "[p]roduction mix was gassier than expected".¹¹⁷</p> <p>Neutral. APA reported an EPS beat on largely in-line production volumes. Production mix was gassier than expected, and the beat was driven by lower production taxes, lower G&A, and lower DD&A. 4Q17 production and FY capital budget guidance remains unchanged from the update last month.</p> <p>Key Themes for the Call. More detail on capex/CF balance in 2018 Expectations for infrastructure spending in 2018 Infrastructure debottlenecking milestones to look for next year in Alpine High asset Call Time. 2 PM EST. 855-859-2056 (Pin: 48384429)</p> <p>Jefferies, in a later report, added that "on the 3Q call, there was some mention of the [Company's capex] budget now being potentially lower than the 2017 budget." The analyst slightly lowered its capex and production estimates for the Company.¹¹⁸</p>

¹¹⁷ Jefferies, "Apache, 3Q In Line, Waiting For 2018 Outlook," November 2, 2017, 9:14 AM.

¹¹⁸ Jefferies, "Apache, Growth Momentum Returns But Major Infrastructure Build Ahead," November 3, 2017, 4:32 PM.

Exhibit 12

Impact Date	Event
	<p>Growth momentum was regained in 3Q, driven by the Permian and North Sea. Some clues were given to the 2018 plan, which will be officially released in February. The tone on the call implied a more measured approach, and we accordingly adjust our model for a lower level of spending next year.</p> <p>Insights into 2018 Plan, Updating Model. Preliminary budget for 2018 had previously been guided for \$3.1 Bn. However, on the 3Q call, there was some mention of the budget now being potentially lower than the 2017 budget (\$3.1 Bn). This is likely a response to the well-received message on capital discipline other E&Ps have been delivering this quarter. APA also guided 2018 int'l spend to \$700-\$900 MM, down from \$900 MM this year. In fact, APA has already started re-allocating some of this year's int'l budget toward testing concepts in the Permian instead. Accordingly, we update our 2018 capex to reflect \$800 MM of int'l spend (\$900 MM previously). The midstream budget had been guided to \$500 MM (from the February update), but it was mentioned this quarter that this could also be pared back. We are still maintaining our \$500 MM estimate given the company's need to quickly develop the Alpine High. In sum, we are now modeling capex of \$2.9 Bn, compared to our previous estimate of \$3.0 Bn. On production, we lower our estimate slightly to 485 Mboe/d, from 489 Mboe/d. We expect for this to result in ~\$300 MM of FCF (consolidated and excl dividends).</p> <p>Large Infrastructure Build Still Ahead. The APA Board approved the first phase of building cryogenic processing, which will begin construction in 2018 and come on line in 2019. To date, APA had been building refrigeration units, which extract less liquids but are also less costly. Having cryogenic processing enhances the ability to process extremely rich gas and also ensures the company's product stream meeting pipeline spec. Although more costly than refrigeration, APA believes this will still fit within the \$500 MM budget for next year. Looking ahead, there is still significant infrastructure needed in the Alpine High. NGLs are currently being trucked and eventually need to move to pipe to achieve higher margins. Additional gas export to the Gulf Coast will also be needed. We believe this build-out will be a capital efficiency drag for APA as compared to other large-cap peers who are now entering development mode.</p> <p>Valuation/Risks</p>

Exhibit 12

Impact Date	Event
	<p>Our target price of \$38 is derived from our NAV. Risks: commodity prices, capital markets, infrastructure delays.</p> <p>JP Morgan “expect[ed] a relatively Neutral stock reaction given [Apache’s] in-line 3Q17 cash flow and the reiteration of the company’s 4Q17 guide.” The analyst noted that its “only quibble could be a gassier production mix relative to the Street.” JP Morgan commented that the Company’s production “was in line with the midpoint of the pre-released guidance” and adjusted EPS and EBITDAX both exceeded the analyst’s estimate and consensus.¹¹⁹</p> <p>JPM View: Stock Reaction – Neutral. We expect a relatively Neutral stock reaction given in-line 3Q17 cash flow and the reiteration of the company’s 4Q17 guide. The only quibble could be a gassier production mix relative to the Street, but 3Q17 oil volumes were in line with our forecast. The company’s closely watched Permian segment delivered volumes slightly better than our expectations. APA’s Permian volumes of 161 MBoe/d were 1.3% higher than JPMe, with 78 MBo/d of oil vs. our 77 MBo/d estimate (+1.3%). Alpine High production of 13.3 MBoe/d was 8% above our 12.2 MBoe/d estimate. While the company’s 3Q17 oil production of 238 MBo/d was in line with JPMe, it was 3% below the Street, but was offset by 3% higher natural gas production.</p> <p>3Q17 in Line with Guidance: APA 3Q17 production of 354 MBoe/d was in line with the midpoint of the pre-released guidance of 352 to 356 MBoe/d, but 0.6% below JPMe at 356 MBoe/d. NaM adjusted production of 207 MBoe/d was in line with APA’s 3Q17 guide of 206 to 208 MBoe/d, but 0.5% below our estimate. International adjusted production of 146.2 MBoe/d was at the low end of the 146 to 148 MBoe/d guide and 1.1% below JPMe at 148 MBoe/d.</p> <p>4Q17 Guide Unchanged.: APA reiterated its 4Q17 guide at 368 to 380 MBoe/d, which includes NAM production at 221 MBoe/d and adjusted international production at 153 MBoe/d</p>

¹¹⁹ JP Morgan, “Apache Corp, 3Q17 Flash - ALERT,” November 2, 2017, 9:17 AM.

Exhibit 12

Impact Date	Event
	<p>Permian Basin Update: On the back of 38 net completions, APA's Permian production averaged 161 MBoe/d, 1% above JPMe at 159 MBoe/d. APA averaged 6 rigs and 3 frac crews in the Midland Basin. APA brought online 3 pads in the S. Midland Basin that dialed in IP-30's of 1,058 Boe/d, 1,142 Boe/d and 1,379 Boe/d. In the Delaware, APA averaged 9 rigs (6 at Alpine High) and 3 frac crews. At Alpine High, APA averaged 13.3 MBoe/d vs. JPMe at 12.2 MBoe/d. APA anticipates a 2017 exit rate of 25 MBoe/d at Alpine High in line with our JPMe.</p> <p>International Ops Update: APA dialed in North Sea volumes at 59.5 MBoe/d, which was 3% below our JPMe of 62 MBoe/d. In the North Sea, the Callater field is currently averaging 14 MBoe/d (60% oil). A third Callater well, the CB1, is scheduled to be brought online in November. APA brought online the BHP well in Beryl field with an average IP-30 of 2,500 Boe/d (85% Oil). APA delivered Egypt adjusted production at 87 MBoe/d, 0.9% above JPMe at 86 MBoe/d. APA brought online 4 Ptah wells with average IP-30 oil rates of 2.6 MBo/d.</p> <p>Production: Actual 448 MBoe/d; Street 452 MBoe/d; JPMe 433 MBoe/d; 2Q17 460 MBoe/d.</p> <p>EBITDAX: Actual \$821 MM; Street \$814 MM; JPMe \$772 MM; 2Q17 \$850 MM.</p> <p>Adjusted EPS: Actual \$0.04; Street (\$0.04); JPMe (\$0.04); 2Q17 (\$0.21).</p> <p>Capex: Actual \$843 MM; Street \$831 MM; JPMe \$853MM; 2Q17 \$738 MM.</p> <p>Morgan Stanley wrote that the Company reported “[i]n-line results on preannounced production.” The analyst noted that the Company’s CFPS was “in line with Consensus” and below its estimate, while the EBTIDAX beat versus its estimate was “attributable to stronger commodity realizations and lower G&T expense.” JP Morgan commented that Apache’s “[p]roduction guidance for 4Q17 was preannounced and remains unchanged; however, the Permian oil beat likely biases oil production higher for 2018”.¹²⁰</p>

¹²⁰ Morgan Stanley, “Apache Corp., 3Q17: Waiting on Alpine High,” November 2, 2017, 12:40 PM.

Exhibit 12

Impact Date	Event
	<p>Results in line, while Permian oil beats. Production guide unchanged, and capex reallocated to reflect higher US activity, offset by lower international spend. Minimal new details on Alpine High, though expected. Call focus on 2018 activity within Alpine High and potential midstream monetization.</p> <p>In-line results on preannounced production, Permian oil growth surprises. APA reports CFPS of \$1.71/sh, in line with Consensus' \$1.71 and below MS' \$1.55. EBITDAX of \$821MM vs. Consensus' \$826MM and MS' \$800MM. Beat vs. MS attributable to stronger commodity realizations and lower G&T expense. Adjusted production of 354Mboed was preannounced and in line with MS' 355Mboed, while oil of 191Mbbld slightly missed our 193Mbbld. Permian oil production of 78Mbbld (+8% QoQ) beats MS of 74Mbbld, driven by strong pad performance in the Midland Basin. Capex of \$843MM slightly ahead of our \$815MM. Production guidance for 4Q17 was preannounced and remains unchanged; however, the Permian oil beat likely biases oil production higher for 2018. Capex guidance remains unchanged at \$3.1Bn; however, NA vs. international spilt updated to \$2.35Bn and \$750MM from \$2.2Bn and \$900MM prior, with lower international spend likely driven by a lower day rate on a recently renewed semi submersible rig in the North Sea, while North America spend increase is likely attributable to the addition of frac crews and 3 rig additions in the quarter (1 in the Delaware basin and 2 in other US, likely SCOOP/CBP - listen for details on call).</p> <p>Ops update light, as expected, following recent Alpine High deep dive. APA disclosed strong oil results from 3 pads in the Southern Midland Basin, as well as strong results from short laterals in Pecos Bend. At Alpine High, production of 13.3Mboed missed our 18Mboed and the exit rate was lowered slightly to 25Mboed from 26Mboed prior.</p> <p>Alpine High midstream in focus. Call today at 2pm ET. Focus remains on Alpine High oil potential (where results to date have been inconclusive), drilling focus are for 2018 and potential midstream valuation insight. For 2018, we model oil production and capex in line with consensus at 251Mbbld and \$3.1Bn, respectively (\$300MM ouspend on current price deck).</p>

Exhibit 12

Impact Date	Event
	<p>RBC wrote that the Company’s EPS and CFPS were “consistent with” the analyst’s estimates and consensus as “[l]ower non-cash DD&A resulted in the earnings beat.” The analyst noted that adjusted production was in-line with its estimate “and at the mid-point of the recently updated ... guidance.” RBC expected that “new information will likely be relatively limited on today’s conference call” given the Company’s October update:¹²¹</p> <p>Our View: CFPS was in line but oil production was soft in Egypt and North Sea compared to our model. A few new well results in the Midland and Delaware unconventional oil plays were consistently solid to offset operators’ and APA’s prior results. In early October APA provided an Alpine High deep dive, so new information will likely be relatively limited on today’s conference call.</p> <p>3Q17 recurring EPS/CFPS of \$0.04/\$1.71 was consistent with our (\$0.01)/\$1.70 and the (\$0.02)/\$1.75 Consensus estimates. Lower non-cash DD&A resulted in the earnings beat.</p> <p>Adjusted production for Egypt tax barrels and non-controlling interest, and production from divested Canadian assets of 354 Mboe/d (191 Mbbl/d oil) was in line with our 355 Mboe/d (195 Mbbl/d) model and at the mid-point of the recently updated 352-356 Mboe/d guidance. NOTE: In early October, APA reduced guidance from the prior 354-370 Mboe/d range reflecting minor hurricane impact, extended turnarounds in the North Sea, and higher tax barrels (high Brent pricing).</p> <p>There were no changes to the recently updated production guidance for 4Q17 and to the \$3.1 billion capital budget.</p> <p>RBC, in a later report, added that the Company’s “2018 budget will come in conjunction with 4Q17 earnings but there should be few surprises” given that Apache had “[p]lenty of flexibility with capital allocation and requirements”:¹²²</p>

¹²¹ RBC Capital Markets, “APA - 3Q17 CFPS In Line; A Few New Permian Wells Looked Good,” November 2, 2017, 8:59 AM.

¹²² RBC Capital Markets, “Apache Corporation, Full Steam Ahead,” November 5, 2017, 9:33 PM.

Exhibit 12

Impact Date	Event
	<p>Our view: The staple of the budget is on Alpine High spending. APA has plenty of cash on the balance sheet to support an outspend next year and mitigates some of the downside risk with oil floors.</p> <p>Key points: Plenty of flexibility with capital allocation and requirements The 2018 budget will come in conjunction with 4Q17 earnings but there should be few surprises.</p> <p>We are modeling just over \$3.1 billion, consistent with what management has generally discussed.</p> <p>This plan causes an outspend of \$500 million when including dividends (\$380 million), which is primarily the investment in Alpine High midstream. APA has \$1.9 billion of cash at 3Q17.</p> <p>Drilling capital in Alpine High to earn acreage should not be too onerous due to the large ranches that occupy APA's core position. Currently there are six operated rigs, which should be more than enough to accomplish acreage capture.</p> <p>International spending should remain within cash flow at \$700-900 million. The improvement in Brent prices benefits international assets.</p> <p>Midstream development is key to driving costs lower \$3/bbl can be saved through the expansion of pipelines which would eliminate the need for trucking of oil and NGLs.</p> <p>Cryo-processing, expected to be online in 2019, improves processing reliability, increases optionality for the product stream, and could improve price realizations.</p> <p>The \$500 million midstream budget next year includes the development of cryo-processing.</p>

Exhibit 12

Impact Date	Event
	<p>Current plans are to add a gas export route directly to the Waha area in 2020-2021. Oil and NGLs are anticipated to be moved to pipe transport in the 2019-2020 timeframe.</p> <p>Alpine High oil window location count should increase APA announced it added another landing zone to its Alpine High oil window. This increases the number of landings to four. Oil window locations total 500, mostly in the Northern Flank and Crest. The company sees at least one additional landing zone in the parasequences in addition to the announced zone.</p> <p>The successful test provides some additional comfort that the parasequence is more predictable than investors might currently believe given the five previously disclosed well results.</p> <p>Outside Alpine High, things are going well Midland Permian results continue to look strong and the oil production growth in 3Q17 was underappreciated.</p> <p>We estimate that Midland/Delaware oil volumes grew approximately 15% sequentially.</p> <p>The North Sea should be strong into 2018 with a third Callater well coming online this month.</p> <p>Scotia wrote that that “APA announced an earnings and EBITDA beat for the quarter” versus the analyst’s estimate and consensus. The analyst commented that “a lot of the fireworks were pre-announced” given the Company’s October update, and “[n]othing in the release changes [its] view on the stock”.¹²³</p> <p>QUICK TAKE: APA announced an earnings and EBITDA beat for the quarter. The company held an in-quarter conference call providing an update to its guidance and Permian operations, so a lot of the fireworks were pre-announced. The company remains on track to meet its \$3.1 billion budget and will likely receive a look into the 2018 budget on next quarter’s call. Despite some operational hiccups, the Alpine High asset produced 13,300 Boe per day for the quarter</p>

¹²³ Scotia Howard Weil, “Apache Corporation, Solid Quarter, Fireworks Already Announced,” November 2, 2017, 8:46 AM.

Exhibit 12

Impact Date	Event
	<p>and should continue its steep ramp as midstream and processing come online. Nothing in the release changes our view on the stock and we continue to favor other names at this time.</p> <p>KEY POINTS</p> <p>Financials Beat. APA reported EPS and EBITDAX of \$0.04 and \$821 million, versus SHW and consensus of (\$0.09) and \$732 million and (\$0.03) and \$803 million, respectively.</p> <p>Permian Activity Continues. The company is operating six rigs in the Midland Basin with three frac crews. In the Delaware, the company operates three rigs with six additional rigs in Alpine Ranch. During the quarter, APA brought online a slew of wells in the Midland with an average 30-day IP per lateral foot of ~140 Boe/d.</p> <p>Callater Ramping. APA averaged 60,000 Boe per day in the quarter from the North Sea with net production from the Callater field around ~14,000 Boe per day from two wells. The company expects to turn a third well online later this month.</p> <p>Societe Generale wrote that the Company's adjusted EPS was better than its estimate and consensus while DCFPS was below consensus and slightly short of the analyst's estimate. The analyst commented that the Company's adjusted production grew quarter-on-quarter and "APA is continuing to deliver on its strategic plan".¹²⁴</p> <p>Adjusted EPS/DCFPS (discretionary cash flow per share after common stock dividends) of \$0.04/\$1.46 were better/inline with SGE \$0.00/\$1.47, and better/worse the Street on \$0.02/\$1.60. Reported EPS of \$0.16 included asset sales gains, impairment and unrealized commodity derivative charges and reorganization costs. Given the sale of Canada and typical non-controlling interest and Egyptian tax barrel adjustments, BOE output depicted on page #3 of the EPS release, which we think more relevant, showed 5% QOQ BOE growth, and more importantly 11% in the Permian (8% oil, 8% Ngls and 17% natural gas), to which APA is</p>

¹²⁴ Societe Generale, "Apache Corp, 3Q17 adjusted EPS beat. QOQ adjusted BOE growth +5%; with 11% in the Permian," November 2, 2017, 11:43 AM.

Exhibit 12

Impact Date	Event
	<p>becoming more leveraged. Product realizations rose QOQ (oil + 5%, ngls + 26% and natural gas +6%).</p> <p>As a consequence of those changes and good unit cost control, adjusted cash flow from operations before working capital changes rose 9% to \$655MM. And adjusted EPS rose from a loss of \$0.21 in 2Q17 to a profit of \$0.04. Sequentially cash operating margins improved across the board (Egypt, North Sea, Permian and other).</p> <p>In 3Q17, APA invested \$928MM (88% upstream and the rest midstream), but grew cash 11% to \$1.846 billion while keeping overall debt basically flat. Versus 2Q17, APA added to hedge positions adding 82.5 MBbls/d of puts, swaps and collars resulting in 32% of oil output hedged, but more importantly begun to add meaningful natural gas and basis hedges to protect operating margins. Overall natural gas volumes are hedged 35%. At quarter's end, APA ended with LTD/Book Capitalization of 53% and had \$1.846 in cash (\$4.82/share).</p> <p>Operations Report Observations: Of the 36 rigs turning, 21 were in NA (6 Midland, 9 Alpine High and 6 elsewhere) and 15 abroad. In the Permian, southern Midland, APA added 3 multi-well pads with 6-7 wells each with 80+% oil cuts and 1,058 to 1379, 30 day IP rates, and Alpine High output was 13.3 MBOE/d and on tack to exit 2017 at 25 MBOE/d. Egyptian operations had higher production, but as a consequence of PSCs, was lower QOQ, and will be exploring on new acreage concessions this quarter. In North Sea output rose nominally with another Callater well still to tie in. Lastly, there was no change to guidance from early October, when it was lowered.</p> <p>SG View: APA is structurally and strategically changing its operations to unconventional Permian growth coupled with lower conventional international pursuits which should kick off free cash flow to support Permian operations. With close to \$5/share in cash, a meaningful hedged floor on output, APA is continuing to deliver on its strategic plan. We realize that the Street has questioned the impact of the Alpine High, but we think it is overlooking the low cost nature of those operations as APA captures the full stratigraphic column, and the fact that their</p>

Exhibit 12

Impact Date	Event
	<p>midstream capital commitment should prove very positive to the company as it has with many US Large Cap E&P peers to facilitating growth.</p> <p>Following the Company's disclosures on November 2, 2017, according to Bloomberg, the average of analysts' price targets for Apache stock decreased to \$48.13 from \$48.38, or -0.52%. All 31 analysts who published investment ratings for the Company both before and after the earnings announcement maintained their ratings. (<i>See Exhibit 5C.</i>)</p> <p>Remark: Given the mix of information disclosed, including that: (i) the Company's adjusted EPS was slightly better than consensus;¹²⁵ (ii) some analysts found that the quarter's "production [was] slightly below [consensus]";¹²⁶ and (iii) the Company's "3Q results offered few surprises following its early October [2017] update,"^{127, 128} the statistically insignificant Company-specific return on November 2, 2017 is consistent with that expected in an efficient market.</p>

¹²⁵ Societe Generale, "Apache Corp, 3Q17 adjusted EPS beat. QOQ adjusted BOE growth +5%; with 11% in the Permian," November 2, 2017, 11:43 AM. *See also, e.g.,* Bank of America Merrill Lynch, "Apache Corp, 3Q17 First look: EPS beats on tax – focus on 2018-2019 activity levels," November 2, 2017, 10:35 AM; JP Morgan, "Apache Corp, 3Q17 Flash - ALERT," November 2, 2017, 9:17 AM; RBC Capital Markets, "APA - 3Q17 CFPS In Line; A Few New Permian Wells Looked Good," November 2, 2017, 8:59 AM.

¹²⁶ Cowen and Company, "Apache Corporation, 3Q17 Earnings at a Glance," November 2, 2017. *See also, e.g.,* Evercore ISI, "Apache, A Very In-Line Quarter," November 2, 2017, 11:04 AM; Jefferies, "Apache, 3Q In Line, Waiting For 2018 Outlook," November 2, 2017, 9:14 AM; JP Morgan, "Apache Corp, 3Q17 Flash - ALERT," November 2, 2017, 9:17 AM.

¹²⁷ BMO Capital Markets, "Apache, Few Surprises in 3Q Following October Update," November 2, 2017, 8:55 AM. *See also, e.g.,* Deutsche Bank, "Apache Corp., Same Story, Different Day," November 2, 2017, 6:21 PM; JP Morgan, "Apache Corp, 3Q17 Flash - ALERT," November 2, 2017, 9:17 AM; Scotia Howard Weil, "Apache Corporation, Solid Quarter, Fireworks Already Announced," November 2, 2017, 8:46 AM.

¹²⁸ Apache provided an investor update on October 9, 2017 after market close. (*See Apache News Release, "Apache Corporation to Post Corporate Update and Alpine High Review on Website Today at 4:30 p.m. CT," October 9, 2017.*)

Exhibit 12

Impact Date	Event
2/22/2018	<p>Before market open on Thursday, February 22, 2018, the Company announced its fourth-quarter and year-end 2017 financial results. For the quarter, Apache reported production of 440 mboe/d, revenue of \$1.64 billion, EPS of \$1.19, and adjusted EPS of \$0.33.¹²⁹</p> <p>The consensus estimates of the Company's quarterly revenue and adjusted EPS were \$1.54 billion and \$0.24, respectively.¹³⁰</p> <p>John J. Christmann IV, Apache's chief executive officer and president, commented on the Company's results:¹³¹</p> <p>2017 was a year of significant progress at Apache marked by several important milestones. In the Permian, we returned to a growth trajectory with notable oil growth in the Midland Basin and commencement of production from Alpine High. We made great technical progress in the Midland Basin increasing lateral lengths and utilizing technology to improve our recoveries and reduce our costs. We consolidated our land position, confirmed additional landing zones, and progressed numerous strategic tests. At Alpine High, we initiated first production ahead of schedule, substantially increased our inventory count, and began to realize operational efficiencies with pad drilling.</p> <p>Internationally, we signed our first concessions in Egypt in 10 years, and with the help of modern-vintage 3D seismic, we expect to unlock significant future drilling opportunities in the region. We also completed our exit from Canada, further streamlining our portfolio. It was a year of numerous accomplishments that has set us up for great success in 2018 and beyond.</p>

¹²⁹ Apache News Release, "Apache Corporation Announces Fourth-Quarter and Full-Year 2017 Financial and Operational Results; Provides 2018 to 2020 Outlook," February 22, 2018; Apache, SEC Form 10-K for year-end 2017, filed February 23, 2018, p. F-58. *See also* *GlobeNewswire*, "Apache Corporation Announces Fourth-Quarter and Full-Year 2017 Financial and Operational Results; Provides 2018 to 2020 Outlook," February 22, 2018, 8:00 AM.

¹³⁰ *Dow Jones Institutional News*, "*Apache Corp. 4Q Net Pft \$456M," February 22, 2018, 8:18 AM.

¹³¹ Apache News Release, "Apache Corporation Announces Fourth-Quarter and Full-Year 2017 Financial and Operational Results; Provides 2018 to 2020 Outlook," February 22, 2018.

Exhibit 12

Impact Date	Event																																												
	The Company also provided guidance for 2018: ¹³²																																												
	<table> <tr> <td><u>Daily Production (mboe/d)</u></td><td><u>2018 Guidance Range</u></td></tr> <tr> <td>United States</td><td>245 - 255</td></tr> <tr> <td>International</td><td><u>203 - 214</u></td></tr> <tr> <td>Total Production</td><td>448 - 469</td></tr> <tr> <td><u>Adjusted Production</u></td><td></td></tr> <tr> <td>United States</td><td>245 - 255</td></tr> <tr> <td>International (as reported)</td><td>203 - 214</td></tr> <tr> <td>Less: Egypt Tax Barrels</td><td>33 - 34</td></tr> <tr> <td>Less: Egypt Noncontrolling Interest</td><td><u>40 - 40</u></td></tr> <tr> <td>Total Adjusted Production</td><td>375 - 395</td></tr> <tr> <td><u>Estimated Product Mix: Oil/NGLs/Natural Gas</u></td><td></td></tr> <tr> <td>United States</td><td>39% / 22% / 39%</td></tr> <tr> <td>International (adjusted)</td><td>70% / 1% / 29%</td></tr> <tr> <td><u>Capital Guidance (millions)</u></td><td></td></tr> <tr> <td>United States</td><td>\$2,300</td></tr> <tr> <td>International</td><td>\$700</td></tr> <tr> <td>Total</td><td>\$3,000</td></tr> <tr> <td><u>Income Statement Items</u></td><td></td></tr> <tr> <td>Operating Costs</td><td></td></tr> <tr> <td>Lease Operating Expenses (millions)</td><td>\$1,450 - \$1,500</td></tr> <tr> <td>Lease Operating Expenses (per boe)</td><td>\$8.60 - \$8.80</td></tr> <tr> <td>Gathering, Transmission, Processing (millions)</td><td>\$275 - \$300</td></tr> </table>	<u>Daily Production (mboe/d)</u>	<u>2018 Guidance Range</u>	United States	245 - 255	International	<u>203 - 214</u>	Total Production	448 - 469	<u>Adjusted Production</u>		United States	245 - 255	International (as reported)	203 - 214	Less: Egypt Tax Barrels	33 - 34	Less: Egypt Noncontrolling Interest	<u>40 - 40</u>	Total Adjusted Production	375 - 395	<u>Estimated Product Mix: Oil/NGLs/Natural Gas</u>		United States	39% / 22% / 39%	International (adjusted)	70% / 1% / 29%	<u>Capital Guidance (millions)</u>		United States	\$2,300	International	\$700	Total	\$3,000	<u>Income Statement Items</u>		Operating Costs		Lease Operating Expenses (millions)	\$1,450 - \$1,500	Lease Operating Expenses (per boe)	\$8.60 - \$8.80	Gathering, Transmission, Processing (millions)	\$275 - \$300
<u>Daily Production (mboe/d)</u>	<u>2018 Guidance Range</u>																																												
United States	245 - 255																																												
International	<u>203 - 214</u>																																												
Total Production	448 - 469																																												
<u>Adjusted Production</u>																																													
United States	245 - 255																																												
International (as reported)	203 - 214																																												
Less: Egypt Tax Barrels	33 - 34																																												
Less: Egypt Noncontrolling Interest	<u>40 - 40</u>																																												
Total Adjusted Production	375 - 395																																												
<u>Estimated Product Mix: Oil/NGLs/Natural Gas</u>																																													
United States	39% / 22% / 39%																																												
International (adjusted)	70% / 1% / 29%																																												
<u>Capital Guidance (millions)</u>																																													
United States	\$2,300																																												
International	\$700																																												
Total	\$3,000																																												
<u>Income Statement Items</u>																																													
Operating Costs																																													
Lease Operating Expenses (millions)	\$1,450 - \$1,500																																												
Lease Operating Expenses (per boe)	\$8.60 - \$8.80																																												
Gathering, Transmission, Processing (millions)	\$275 - \$300																																												

¹³² Apache News Release, “Apache, Fourth-Quarter 2017, Financial and Operational Supplement,” February 22, 2018.

Exhibit 12

Impact Date	Event
	<p> General and Administrative Expenses (millions) \$450 - \$475 Net Interest Expense (millions) \$385 Exploration Expense (millions) \$170 DD&A (per boe) \$14.25 - \$14.75 Cash Taxes (millions) \$150 - \$175 </p> <p>The Company also provided a “Three-year outlook (2018 to 2020)”:¹³³</p> <p>Planned aggregate upstream investment of approximately \$7.5 billion;</p> <p>Total Alpine High midstream investment of \$1 billion;</p> <p>Anticipates a compound annual growth rate of 11 to 13 percent worldwide, 19 to 22 percent in the United States, and 26 percent to 28 percent in the Permian Basin; and</p> <p>Expects strong and growing Cash Returns on Capital Invested (CROIC) of 18, 20 and 22 percent, respectively, over the three-year period.</p> <p>Christmann commented on the Company’s guidance: “Our three-year plan will generate strong returns and growth and will create significant long-term value for our shareholders. Over the last three years, Apache has returned over \$1.1 billion to shareholders through the dividend. In the coming three years, we plan to return at least this amount and possibly more.”¹³⁴</p>

¹³³ Apache News Release, “Apache Corporation Announces Fourth-Quarter and Full-Year 2017 Financial and Operational Results; Provides 2018 to 2020 Outlook,” February 22, 2018.

¹³⁴ *Ibid.*

Exhibit 12

Impact Date	Event
	<p>The Company held a conference call with investment analysts the same day.¹³⁵</p> <p>Bank of America Merrill Lynch wrote that the Company’s adjusted EPS beat its expectations “mainly on lower taxes” while production was ahead of consensus “but note that this had been pre-announced in early January.” The analyst saw Company guidance as “mixed,” noting “while growth through 2020 matches our estimates for the full company, Permian growth is light.” BofAML commented that the Company’s “skew toward gas from oil remains the headwind we expect to keep incremental DACF per share growth lagging peers”.¹³⁶</p> <p>EPS beat estimates on lower tax; 2018 guide looks light APA announced adj. EPS/CFPS of \$0.33/\$1.99 (pre-w/c), ahead on EPS and cash flow \$0.24/1.83 (BofA ML \$0.0/\$2.14). At first glance, the beat versus our estimate is mainly on lower taxes. Reported Oil and boe production of 242.6 mbod/440mboed compared to consensus of 235mbod/438mboed, but note that this had been pre-announced in early January. Adjusted for Egypt tax barrels, total production of 362mboed was slightly below our estimate of 364mboed. Permian oil and boe of 85.5mbod/177mboed compared to our estimate of 82mbod/181mboed. Higher full-company oil was split between Permian and North Sea, where estimates were cut due to the December outage at the Forties pipeline. 2018 capital spending of \$3.0bn (flat y/y, vs. the Street at \$3.1bn) is expected to drive 7-13% full-company growth (448-469mboed) – lower than the Street, at 476. However, this looks mainly driven by International, rather than Permian, where 9% oil growth looks light versus our estimate of 20%, likely on the trend toward higher gas production growth from the Alpine high. Note, the US gas mix increased to 33% from 30% in 4Q17. This steady transition remains the primary basis of our Underperform rating.</p> <p>3-year capital plan light on Permian: we view as mixed</p>

¹³⁵ *Thomson Reuters, StreetEvents*, “APA – Q4 2017 Apache Corp Earnings Call, EVENT DATE/TIME: FEBRUARY 22, 2018 / 7:00PM GMT,” February 22, 2018, 2:00 PM.

¹³⁶ Bank of America Merrill Lynch, “Apache Corp, 4Q17 First look: EPS beat on tax; shift toward US gas remains primary headwind,” February 22, 2018, 10:24 AM.

Exhibit 12

Impact Date	Event
	<p>APA announced a three-year capital and growth outlook of \$8.5bn (\$7.5bn for upstream /\$1.0bn for Alpine Midstream) and a production CAGR of 11-13%: spending looks better than the Street's \$9.7bn, with average production growth in line. However, while growth through 2020 matches our estimates for the full company, Permian growth is light (26- 28% vs. 33%), offset by higher international production, which is maintained flat versus an assumed natural decline, as in our base case. Critically, we see the US production mix shifting toward 44% gas by 2020, underlining APA's increasing leverage to a depressed US gas-price outlook. Separately, APA continues to signal potential monetization of nonproductive midstream assets, which 'could eliminate some or all of this [\$1.0bn] expected spend.' Note that \$500mm of the \$1.0bn is expected in 2018, suggesting that midstream spend is front-end loaded, which sets up for a lumpy growth profile.</p> <p>Cash on cash returns target introduced APA's updated targets are accompanied by cash return on capital invested (CROCI) targets of 18%, 20% and 22% for the respective three-year period. We see this as the latest response to greater shareholder interest in disciplined capital allocation, which stems from a frustrating history of sub-par returns for the E&P sector. The company stopped short of providing an explicit increase in dividends or buybacks, but, instead, suggested that it could return 'possibly more.' On the margin, a move toward share buybacks enabled by midstream monetization would improve the relative outlook vs. peers.</p> <p>Maintain Underperform In summary, our Underperform rating on APA reflects uncertainty around the scale, timing and cash-flow impact of accelerating gas production in the Permian. While increased disclosure is welcomed, the skew toward gas from oil remains the headwind we expect to keep incremental DACF per share growth lagging peers.</p> <p>Bank of America Merrill Lynch, in a later report, reiterated that the Company's "[g]as weighted growth outlook [was] still the primary headwind." The analyst added that "when faced with a weak US natural gas price outlook and uncertain basis, we think the [Company's] change in mix towards a higher proportion of gas is simply too difficult to have conviction on value until actual prices, costs and cashflow are tangible." BofAML decreased its</p>

Exhibit 12

Impact Date	Event
	<p>price target for the Company to \$45 from \$47:¹³⁷</p> <p>Gas weighted growth outlook still the primary headwind Apache's commitment to its Alpine High development continues to anchor an investment outlook that is complicated by the challenges of setting in motion a major project development, absent existing infrastructure and where the longer term outlook on realized prices has no visibility. Still, with 4Q17 earnings, management has endeavored to improve guidance, providing a medium term outlook on how production will evolve and the role that will be increasingly played by gas production as the key driver of growth. But when faced with a weak US natural gas price outlook and uncertain basis, we think the change in mix towards a higher proportion of gas is simply too difficult to have conviction on value until actual prices, costs and cashflow are tangible. Reiterate Underperform.</p> <p>Potential midstream monetization may offer some relief New this quarter is an outlook that suggests Permian production ex Alpine High is expected to be flat, while international output long the option on stronger Brent-based oil prices is in moderate decline. These are the portfolio choices being made by mgmt that render the investment case long-dated and to APA's credit, is aligned with an incentive compensation structure. Near term, mgmt has signaled the option to release value from its midstream investments. With a potential transaction this year albeit in an as yet undisclosed structure, the potential for some near term relief to recent share price underperformance which with spot gas prices at ~\$2.60 begs the question of whether share performance can get any worse. We adjust our estimates to reflect updated guidance.</p> <p>APA does not screen expensive; but neither many oil peers Benchmarked against the wider sector, APA is not expensive vs our PO which we trim slightly from \$47 to \$45 per share. At the same time, beyond a challenged gas price, we think APA is hardly a high risk proposition given a robust balance sheet, near 3% dividend yield and</p>

¹³⁷ Bank of America Merrill Lynch, "Apache Corp, 4Q17 recap: medium term outlook helps visibility; but many questions unanswered," February 22, 2018, 10:52 PM.

Exhibit 12

Impact Date	Event
	<p>disciplined management committed to spending within cashflow. But countering any temptation to revisit the shares on valuation alone is the relative call that compares APA with equally undervalued stocks with more favorable commodity transitions towards oil, and it is on this basis that despite limited absolute downside, our relative call remains Underperform, although in our view it is difficult to conceive how things get much worse.</p> <p>BMO wrote that “[w]hile [Apache’s] 4Q17 production was pre-announced, oil volumes beat expectations, which along with better realizations translated to higher EPS and EBITDAX,” both of which beat the analyst’s estimates and consensus. However, the analyst commented that the Company’s 2018 production guidance was “below our/consensus” estimates.¹³⁸</p> <p>Bottom Line: While 4Q17 production was pre-announced, oil volumes beat expectations, which along with better realizations translated to higher EPS and EBITDAX, while capex was slightly above. Production guidance for 2018 was light on both U.S. and International, but oil was in line, while capex was slightly above our model. Apache’s long-term guidance shows lower International than our model, resulting in 2019 being slightly below, but 2020 is in line on better Permian, with capex over 2018-20 as expected.</p> <p>Key Points 4Q Better Driven by Permian Oil. Apache reported 4Q17 EPS of \$0.33, above our/ consensus \$0.25/0.23. EBITDAX of \$1,101mm also beat our/consensus \$956/898mm, but CFO before working capital of \$760mm missed our \$806mm. Production was preannounced and 440MBoe/d was in line with our/consensus 439MBoe/d. That said, oil of 243MBo/d (not pre-announced) beat our/consensus 237/235MBo/d, with Permian driving most of the beat versus our model (higher North Sea offset lower Egypt). Alpine High production averaged 19.8MBoe/d and was previously disclosed to have met the >25MBoe/d exit rate. Better realizations also contributed to higher EBITDAX, while capex of \$909mm was slightly above our/consensus \$855/866mm estimates.</p>

¹³⁸ BMO Capital Markets, “Apache, 4Q Better on Oil; 2018-20 Outlook Mostly In Line With Expectations,” February 22, 2018, 8:53 AM.

Exhibit 12

Impact Date	Event
	<p>2018 Production Light on Higher Capex, But Oil In Line. Apache guided to 2018 production of 448-469MBoe/d, which is below our/consensus 465/476MBoe/d. Versus our model, U.S. of 245-255MBoe/d was shy of our 256MBoe/d, while International of 203-214MBoe/d was in line with our 209MBoe/d. That said, oil is implied to be ~238-249MBoe/d, which is above our 237MBoe/d and in line with consensus of 247MBoe/d. Capex is budgeted at \$3.0Bn, which is above our \$2.8Bn estimate (\$3.1Bn GAAP), on higher U.S. spend. Operating cost guidance is higher across most line items, excluding GP&T where the bump is driven by an accounting change.</p> <p>LT Outlook Below in 2019 on International; 2020 In line on Better Permian. Apache provided 2019-20 guidance, where Permian is In line to better, but International below our model. Adjusted production in 2019 of 410-440MBoe/d, is below our 444MBoe/d mostly due to International (125-140 vs. our 143MBoe/d), while Permian (245-260 vs. 250MBoe/d) is in line. In 2020, adjusted production of 475-510MBoe/d is in line with our 491MBoe/d, while Permian of 315-335MBoe/d is above our 295MBoe/d, with International below again (flat with 2019). Total capex over 2018-20 of \$8.5Bn is slightly below our \$8.7Bn (\$9.7Bn GAAP).</p> <p>Cowen wrote that the Company's EBITDAX, adjusted EPS, and "4Q17 total and oil production beat our estimates and the street's." However, the analyst cautioned that the Company's "2018 production and capex guidance were below our estimates and the street, possibly raising concerns about constraints in the Permian Basin." Cowen noted that "Alpine High still represents the majority of future growth which will be mainly natural gas".¹³⁹</p> <p>Neutral. 4Q17 production and earnings beat, though 2018 production and capex guidance were below street estimates. While near-term product mix appears oilier than expected, Alpine High still represents the majority of future growth which will be mainly natural gas. We see the potential for cash returns possibly through monetization of Alpine High midstream.</p> <p>Stock Thoughts</p>

¹³⁹ Cowen and Company, "Apache Corporation, 4Q17 Earnings at a Glance," February 22, 2018.

Exhibit 12

Impact Date	Event
	<p>4Q17 total and oil production beat our estimates and the street's. EBITDAX and adj. EPS also beat. Alpine High appears on track. 2018 production and capex guidance were below our estimates and the street, possibly raising concerns about constraints in the Permian Basin. The company highlights its past and future commitment to capital return.</p> <p>What to Expect on the Call</p> <p>Production and Capex Guidance: 2018 production and capex guidance both came in below our estimates and the street. Given the company's focus in the Permian Basin and its capital position, we expect questions regarding possible constraints in the basin such as service cost inflation and takeaway capacity possibly influencing the company's capital program.</p> <p>Product Mix: 2018 total company product mix guidance, implied from U.S. and International guidance, appears to be oilier than our estimates and the street (53% guidance vs. our estimate of 51% and the street of 50%). We would expect discussions on the company's mix going forward.</p> <p>Capital Return: Management made several comments regarding capital return including their long history of paying dividends (53 consecutive years) and amounts recently paid to shareholders (over \$1.1B over the last 3 years). Looking ahead, to the next 3 years, the company plans "to return at least this amount and possibly more." We expect additional discussion on how additional capital may returned (i.e. increased dividend, buyback, ect) and the possible timing of such actions.</p> <p>LOE: We anticipate additional details on the company's LOE guidance of \$8.60-8.80/boe. Over the last 8 quarters, LOE has exceeded \$8.50/boe only once.</p> <p>Guidance Highlights</p> <p>Production Guidance: APA estimates 2018 total production of 448-469 Mboe/d. This compares to our estimate of 471.2 Mboe/d and the street of 476 Mboe/d.</p> <p>FY18 capex guidance of \$3,000MM (\$2,300MM N. America and \$700MM International). We estimated \$3.2B and consensus was \$3.1B.</p>

Exhibit 12

Impact Date	Event
	<p>Credit Suisse wrote that the Company’s “4Q EPS/CFPS [was] mixed vs. consensus,” while “production [was] in line.” The analyst commented that the Company’s “2018 production guidance [was] lower (and gassier) than expected” and the “2019-20 outlook also fell well short of expectations ... driven much lower Permian volume guidance which came in 15-20% below expectations”.¹⁴⁰</p> <p>2018 budget in line but implied 2019-20 capex well below expectations. APA disclosed its official 2018 capex budget of \$3.0bn, consistent with recent comments that it would be down slightly YoY and below prior soft guidance of ~\$3.1bn. APA plans to allocate >70% (~\$2.1bn) of its budget to the Permian, of which ~\$1.2bn is for Alpine High (including \$500MM for midstream). Meanwhile, ~22% (~\$660MM) will go to its International assets. From 2018-20, APA expects to spend \$7.5bn on upstream worldwide and \$1bn for midstream at Alpine High, well below consensus of ~\$11bn.</p> <p>2018 production guidance lower (and gassier) than expected; 2019-20 outlook disappoints. APA provided “reported” 2018 volume guidance (including Egypt tax barrels & non-controlling interest) of 448-469 MBoed (+5-10% YoY), ~5% below consensus/CSe. Nearly all of the delta vs. our forecasts was in the Permian (~200 MBoed guide vs. CSe 231 MBoed), driven by much lower than expected Alpine High volumes (see Figure 1). US guidance of 245-255 MBoed was ~8% below CSe, entirely on lower liquids as US gas volumes were 10% higher than expected. Longer-term, APA’s 2019-20 outlook also fell well short of expectations with 2019 guidance of 480-515 MBoed (~6% below consensus) & 2020E ~545-585 MBoed (~3% below). Relative to CSe, the weaker 2019-20 outlook was again driven much lower Permian volume guidance which came in 15-20% below expectations.</p> <p>4Q EPS/CFPS mixed vs. consensus; production in line. Clean EPS of \$0.33 beat consensus/CSe \$0.23/\$0.33; CFPS of \$1.81 was below the Street’s \$1.88 but above our \$1.72 forecast on tighter crude/gas diffs & lower cash costs which came in ~5% better vs. CSe. Reported 4Q volumes of</p>

¹⁴⁰ Credit Suisse, “Apache Corporation, 2018 and Longer-Term Guidance Disappoint on Underwhelming Permian Outlook,” February 22, 2018.

Exhibit 12

Impact Date	Event
	<p>~440 MBoed were in line with expectations. Proved reserves fell ~10% YoY to ~1.2 BBoe (87% PDP) driven by Canadian asset sales as APA replaced ~124% of production organically. We'll revisit estimates post conf call.</p> <p>Fairly valued vs. peers. \$43 TP based on ~6.2x '19E DACF & ~0.95x NAV.</p> <p>Credit Suisse, in a later report, added that Alpine High was a “continued headwind to sentiment” given its gassy profile. The analyst reduced its price target for the Company to \$39 from \$43, and “lowered 2018-20E CFPS by ~4-7%”.¹⁴¹</p> <p>2018 and LT guidance disappoint on lower than expected Permian outlook, gassier growth; update dilutive to valuation. 2018 capex guidance of \$3bn was in line with consensus/CSe but APA's full year volume target of 448-469 MBoed (“reported”) was ~5% below expectations with nearly all of the delta vs. CSe on lower Permian volumes (~13% lower than our estimates) with total US volumes ~8% below CSe (all on liquids). APA also rolled out a three-year outlook with implied 2019-20 capex of ~\$2.75bn/annum (~20% below expectations) though corresponding production targets were ~3-6% below consensus & imply a dramatic decline in APA's overall oil mix from >50% in 2018 to ~42% by 2020. All-in the update improves APA's '18-20E FCF profile by ~\$450MM vs. prior CSe but is dilutive to near-term debt-adjusted growth & leaves APA trading ~0.5x more expensive on 2018-19 EV/DACF. We lowered 2018-20E CFPS by ~4-7%.</p> <p>Alpine High update unlikely to reverse sentiment in our view. Since unveiling the play in Sept. 2016, APA has underperformed peers by >30%. Given the gas/NGL-driven growth & concerns over Waha differentials, we see the play as a continued headwind to sentiment. Incremental updates include: 1) well costs expected to fall ~25% YoY to ~\$6MM on associated efficiencies from shifting to more pad drilling; 2) anticipates midstream JV/monetization this year with a priority of retaining control (seems more likely to pursue a bespoke deal with an LNG/chemical</p>

¹⁴¹ Credit Suisse, “Apache Corporation, 2018 and Longer-Term Guidance Disappoint on Underwhelming Permian Outlook,” February 22, 2018.

Exhibit 12

Impact Date	Event
	<p>partner rather than traditional MLP/GP structure); 3) upstream development expected to be FCF neutral within three years at which point it would be more inclined accelerate debt reduction and/or buybacks; and 4) ~44% of 2018E Alpine High volumes hedged through basis swaps (~\$0.50/Mcf), falling to ~20% in 2019E.</p> <p>4Q EPS/CFPS mixed. Clean EPS of \$0.33 beat consensus/CSe \$0.24/\$0.32; CFPS of \$1.81 was below the Street's \$1.88. Reported 4Q production of ~440 MBoed was in line with expectations.</p> <p>Fully valued vs. peers. Our \$39 TP (was \$43) is based on ~6.2x 2019E DACF and implies ~0.80x NAV. Risks: oil prices, Alpine High execution.</p> <p>Deutsche Bank wrote the Company's adjusted EPS beat its estimate and consensus "largely driven by higher realizations and a solid up and down cost beat, but that "[l]ower capex guide [was] more than offset by lower/back-end loaded production guide." The analyst also noted that "the production CAGR targets ... look to include higher volumes from the Alpine High vs. our estimates (less oil)":¹⁴²</p> <p>Lower capex guide more than offset by lower/back-end loaded production guide While the multi-year capital budget guidance was better than expected (~\$600m/ yr lower in 2019-20 than DB/Street estimates), we see three issues that are likely to disappoint investors: 1) 3-year production growth is heavily back-end loaded, with 2018-2019 estimates well below our estimates, 2) lack of incremental visibility on cash return to shareholders was disappointing relative to other large-caps on the quarter, and 3) No details on midstream monetization, as hoped by many investors. Although 3-year free cash dynamics are slightly improved relative to our prior expectations, we continue to see an underwhelming combination of growth and FCF relative to peers, and see greater value elsewhere. Hold. Positive: 2018 capex reduced from \$3.1 Bn to \$3.0 Bn, and three-year capex of ~\$8.5 Bn (vs. DBE \$9.8 Bn); 2020 volume guide of 475-510 Mboe/d largely in line with DBE 497 Mboe/d, despite lower capex. Negative: 2018/19 volume guidance of 385/425 Mboe/d well below DBE 396/454 Mboe/d, as growth is heavily levered to a large increase in 2020; 2018 Permian oil volumes flat vs. 4Q17; 2018 cost guidance</p>

¹⁴² Deutsche Bank, "Apache Corp., APA 4Q17 - A Dream Deferred," February 22, 2018, 12:03 PM.

Exhibit 12

Impact Date	Event
	<p>above DB estimates on gathering/transport (\$288m vs. DBE \$240m) and G&A (\$463m vs. DBE \$400m).</p> <p>Key Call Takeaways: 2018-2020 Outlook: APA lowered its 2018 capex budget by \$100 mm vs. its October outlook, and the 3-year plan of \$8.5bn (inclusive of \$1bn of Alpine High midstream spend) compares very favorably vs. consensus estimates north of \$10bn over that time frame while the production CAGR targets (worldwide/US/Permian) are in line with DBE (11%-13%/19%-22%/26%-28% vs. DBE 12%/20%/27%) and consensus (total prod. 10%), though look to include higher volumes from the Alpine High vs. our estimates (less oil) and more back-end weighted (2018 guidance 7%-13% vs. DBE/cons 13%/12%). Visibility into shareholder cash return was unclear however. Shares currently yield ~3% via the dividend, vs. most large-cap peers <1%, but with the company looking to generate material FCF beginning in 2019 (DBE ~\$500 mm), the lack of commitment to returning cash to shareholders compares unfavorably vs. peers that have prioritized buybacks/dividend increases this earnings season. We look to the call for thoughts around midstream monetization and potential buybacks from proceeds.</p> <p>Permian Outlook: Permian oil growth guidance of 9% in 2018 looks a bit light (vs. DBE 19%, albeit on higher capex totals), and implies flat Permian oil volumes vs. 4Q17, as well as flat total volumes through 2020 (after a 6% y/y increase in 2019). Alpine High pad well results in the quarter were broadly in line with type curves that are based on short laterals (<5k ft). On the call we look to see what (if any) productivity efficiencies/lateral length increases are baked into the 3-year outlook.</p> <p>4Q Results: Adj EPS of \$0.33/sh beat DBE/St ests. \$0.14/\$0.24 largely driven by higher realizations and a solid up and down cost beat, but with higher Brent prices driving higher Egypt taxes, dragging on cash flows. Details within. On the call we look to see what's driving higher gather/ transport, and G&A costs in 2018 guidance.</p>

Exhibit 12

Impact Date	Event
	<p>Evercore wrote that the Company had “an essentially in-line quarter” as production was “slightly above our/street estimates,” “4Q17 unit costs were better than our expectations,” and adjusted CFPS also “exceeded” the analyst’s estimate:¹⁴³</p> <p>Looking through the one-timers, an essentially in-line quarter from APA The strategy at APA has not changed. Consistency cuts both ways in E&P where ‘incrementals’ and rate of change are rewarded by the market. As expected, the 2018 program will look a lot like 2017, with a ~\$3.0 Bn capital plan generating modest growth within cash flow driven by the Permian (read Alpine High). The challenge at APA has been the market’s waning confidence in Alpine High as a top tier lower 48 resource play, particularly relative to the core of the Permian (of which APA has plenty in the Midland basin). At this stage, APA is following words with action at Alpine and capital allocation suggests no wavering in confidence surrounding the program (\$500 mm midstream spend). Widening natural gas basis at Waha has contributed to market focus on the gas marketing strategy of all exposed Delaware players and the 2018 outlook is an opportunity for APA to differentiate based on a vertically integrated program and size of the program. 2018 looks to be make or break. Maintain In-line rating.</p> <p>4Q17 Results. APA reported total 4Q17 production of 440 mboe/d (incl. NCI), slightly above our/street estimates of 434/438 mboed. Total US production of 222 mboe/d was ~inline with our 224 mboed estimate (US oil at 98 mbpd vs our 95), while N. Sea volumes came in above our estimates despite having adjusted for Forties downtime. 4Q17 unit costs were better than our expectations with unit LOE, transport, and SG&A 5%/24%/14% below our estimates. Thus Adj. CFPS of \$2.69 exceeded our \$2.27 estimate. APA averaged 21 rigs in NAM in 4Q (16 Permian) and 15 rigs internationally (12 Egypt, 3 N Sea).</p> <p>What to look for on the call? 1) 2018 plan detailed, in context of 3- year outlook. APA outlined a \$3.0 Bn 2018 capital program (vs our \$2.95 Bn into the release), driving ~10% total (adjusted) production growth across the portfolio to ~385 mboed this year. In the US, 2018 guidance midpoint at 250 mboed compares to our 271 mboed, while 39% US oil mix implies ~98 mbpd</p>

¹⁴³ Evercore ISI, “Apache, “Quietly Following Thru on Alpine, Market Looking for Clarity,” February 22, 2018, 12:20 PM.

Exhibit 12

Impact Date	Event
	<p>(vs our 100 mbpd estimate). Through 2020, APA looks to drive a production CAGR of 11-13%, driven primarily by the Permian basin (26-28% CAGR through 2020). FY18 Permian production guide at 200 mboed looks to imply ~50 mboed exit-to-exit basin-wide growth (boes). 2) Infrastructure buildout (and possible sell-down) at Alpine High. Today's release indicated a 5th CPF on APA's Alpine High acreage is due online in January (which looks to be a 1-2 month delay vs our expectation and October update). Look for some follow-up here on progression of infrastructure buildout and (more importantly, in our view) potential midstream monetization. APA has previously indicated this could take place as soon as this year; management's latest thinking on potential deal structure (MLP, JV, etc) will be of interest. 3) Capital returns. The strategy at APA has been consistent. Throughout 2017, APA returned nearly \$400mm to shareholders through dividends. Recall APA stood among the few E&Ps which neither diluted shareholders or reduced the dividend through the downcycle. In an environment where 'shareholder friendly' initiatives are in vogue (and with over \$1.6 Bn cash on hand) look for some discussion surrounding potential for one-time or recurring cash returns.</p> <p>Jefferies wrote that "APA reported an EPS beat [versus the analyst's estimate and consensus] on in-line total production and higher oil production." The analyst commented that "APA reported a 2018 production outlook below expectations, with total production 4% below consensus and oil production 1% below".¹⁴⁴</p> <p>Mixed. APA reported an EPS beat on in-line total production and higher oil production. However, APA reported a 2018 production outlook below expectations, with total production 4% below consensus and oil production 1% below. APA also introduced a three-year outlook with plans to deliver a 19%-22% US production CAGR (ahead of our 17%).</p> <p>APA Reports EPS Beat. APA reported an adjusted EPS of \$0.33, ahead of JEF/consensus estimates of \$0.21/\$0.23. Production of 440.2 mboe/d was in-line with our 440.8 mboe/d estimate and a slight beat relative to consensus at 438.8 mboe/d. APA's oil production of 242.6 mbbls/d beat our 235.8 mbbls/d estimate (which was adjusted down due to Forties Field</p>

¹⁴⁴ Jefferies, "Apache, 4Q Beat; Three-Year Outlook Unveiled," February 22, 2018.

Exhibit 12

Impact Date	Event
	<p>outages). The EPS beat vs our model was on higher realized pricing across all hydrocarbons, lower LOE, lower G&A, and an oilier mix, which was partially offset by higher DD&A.</p> <p>2018 Guidance. APA introduced 2018 capex guidance of \$3Bn, with \$2.3Bn to be spent in the US including \$500MM on Alpine High midstream and the balance on international assets. Total production guidance of ~459 mboe/d was 4% below both our and consensus estimates, while oil guidance was 3% and 1% below our and consensus estimates, respectively. The company introduced a three-year outlook with plans to spend \$7.5Bn on upstream and \$1Bn on midstream over the period to deliver an 11-13% production CAGR through 2020. The company also expects to deliver a 19-22% production CAGR from its US portfolio which is ahead of the 17% CAGR we have estimated. The company does expect the Alpine High program to deliver 160-180 mboe/d in 2020 from 9 mboe/d in 2017.</p> <p>Permian Operations. In the Midland Basin, APA averaged five rigs and two frac crews during 4Q17, placing three multi well pads on production. In the Delaware Basin, APA averaged nine rigs (six in Alpine High). Production from the Alpine High increased to 19.8 mboe/d in 4Q17, up from 13.3 mboe/d in 3Q17. APA also completed construction of the 5th Central Processing platform, with 280 MMcf/d of processing at YE17 with another 50 MMcf/d of processing capacity added in January. APA also highlighted well results in the Alpine High, with two Woodford wells (Elbert State) producing at a 30d rate of 1,175 boe/ d (25% oil) and three Barnett/three Woodford wells (Dogwood State) producing at a 30d rate of 10 MMcf/d (100% gas).</p> <p>International Operations. In Egypt, APA completed nine wells that achieved 1,000+ boe/ d 24hr IP rates. APA also began an 1,800 sq km 3D seismic project, following the aware of additional concessions in the Western Dester area. In the North Sea, APA's 4Q17 production was negatively impacted by the 17d shutdown of the Forties Pipeline System (operated by a third party). APA also completed the sale of the SAGE gas pipeline and brought a third Callater development well online.</p> <p>Key Themes for the Call.</p>

Exhibit 12

Impact Date	Event
	<p>Alpine High exit rate production (APA had previously mentioned an exit rate of ~25 mboe/d) Potential impact of Waha basis on future cash flow Additional color on three-year outlook</p> <p>JP Morgan wrote that, “[d]espite strong 4Q17 results, the stock will need to digest lower 2018 and 2019 expectations relative to the Street, particularly given the fact that the downside production forecast relative to our model was largely driven by lower Permian output”:¹⁴⁵</p> <p>JPM View: Despite strong 4Q17 results, the stock will need to digest lower 2018 and 2019 expectations relative to the Street, particularly given the fact that the downside production forecast relative to our model was largely driven by lower Permian output. In addition, we believe there were expectations heading into the print that APA could potentially announce a midstream monetization for its midstream investments at Alpine High. On the plus side, we do note that the company’s 2020 production guide is consistent with our model and the longer-term upstream capex guide of \$7.5 billion over three years was 7% below our \$8.1 billion estimate on a cumulative basis.</p> <p>2018 production guidance light vs. expectations: APA’s 2018 production guidance range of 448 - 469 MBoe/d was 4% below consensus of 476 MBoe/d. However, the company’s 2018 capex of \$3.0 billion was 4% below the consensus forecast of \$3.14 billion. APA’s adjusted production guidance range of 375 to 395 MBoe/d was 4% below JPMe at 401 MBoe/d (the U.S. adjusted production guidance range of 245 to 255 MBoe/d was 4.2% below JPMe at 261 MBoe/d; the International adjusted production guide of 130 to 140 MBoe/d compared with JPMe at 139 MBoe/d).</p> <p>2018 oil guide is 5% light vs. JPMe: APA guided its 2018 U.S. oil mix at 39%, which was in line with JPMe. However, the company’s 2018 U.S. oil volume guide of 98 MBo/d was 5% below our JPMe at 103 MBo/d.</p>

¹⁴⁵ JP Morgan, “Apache Corp, 4Q17 Flash: Despite 4Q Beat, Stock Will Need to Digest Lower 2018/2019 Output - ALERT,” February 22, 2018, 10:18 AM.

Exhibit 12

Impact Date	Event
	<p>2019 adjusted production outlook disappoints, but 2020 is in line: APA sees 2019 adjusted production at 425 MBoe/d vs. JPMe at 447 MBoe/d. The variance vs. our expectations is primarily driven by lower U.S. production growth. APA's 2019 U.S. adjusted production of 285 to 300 MBoe/d is 7% below JPMe at 314 MBoe/d, with the variance driven by lower Permian production. The 2019 Permian production guide of 253 MBoe/d is 8% below JPMe at 274 MBoe/d. APA guided 2020 U.S. adjusted production at 350 to 370 MBoe/d, which is in line with JPMe at 359 MBoe/d. Meanwhile, the 2020 Permian production guide of 325 MBoe/d is 1% above JPMe at 322 MBoe/d.</p> <p>Multi-year international adjusted production better than our expectations: APA's 2019 international adjusted production guide of 133 MBoe/d was in line with our forecast at 134 MBoe/d. APA's 2020 international adjusted production is flat YoY dialing in at 133 MBoe/d., which is 7% above our JPMe at 124 MBoe/d.</p> <p>4Q17 Update: APA's 4Q17 production of 440 MBoe/d was 1% above the Street forecast of 438 MBoe/d. APA's 4Q17 oil volumes of 243 MBo/d were 3% above the Street forecast of 236 MBo/d.</p> <p>MUFG was “encouraged by the company’s current solid financial standing, but believe[d] the market continue[d] to view Alpine High’s still-nascent potential with a ‘wait-and-see’ mentality.” The analyst raised its rating for the Company to “Overweight” from “Neutral” but lowered its price target to \$46 from \$56:¹⁴⁶</p> <p>For Apache, 2017 was a year of stabilization as the company halted a trend of year-over-year production declines that began in 2014 and prepared for growth in 2018 and beyond. Production within the U.S. hit 222 MBoe/d in 4Q’17 compared to 206 MBoe/d in the 4Q’16, and the momentum built domestically in 2017 should make up for modest projected declines in their Egypt and North Sea plays for 2018.</p>

¹⁴⁶ MUFG, “Apache Corp., Raising to Overweight; Recent Price Decline Makes the Shares Attractive,” February 26, 2018, 12:40 PM.

Exhibit 12

Impact Date	Event
	<p>During the past few years, a period CEO John Christmann described as “value-destructive” for the industry, Apache has not chased growth as hydrocarbon pricing deteriorated. Instead, the company repositioned themselves to be leaner and more selective in the assets they develop, selling off their Canadian operations to focus on the high-growth potential of the Delaware (Alpine High) and Midland sections of the Permian basin. Going into 2018, production looks poised to benefit from these investments with particular focus being paid to the Alpine High’s NGL-rich 340,000 net acres.</p> <p>In addition, John Christmann emphasized the potential monetization of APA’s midstream assets in the Delaware basin as early as this year, bringing capex off the company’s books, and providing more clarity on the stand-alone upstream operations.</p> <p>The existing operations in the CBP, Egypt, and the North Sea remain high-margin funding sources for its exploration endeavors, allowing it to focus on its long-term growth plans, primarily in Delaware and Midland. We are encouraged by the company’s current solid financial standing, but believe the market continues to view Alpine High’s still-nascent potential with a “wait-and-see” mentality. Finally, while international exploration efforts in Suriname are a potential source of future growth, they are also far from certain - the company drilled an exploration well in the first half of 2017 that proved unsuccessful, and has yet to book any reserves in this area.</p> <p>Given all the above, we are upgrading the equity to Overweight from Neutral while lowering the price target to \$46 from \$56. Our 2019 estimates express an EV/EBITDAX multiple of 6.5x which is a discount to the group average of 7.5x. We view the discount as justified until we see substantive production numbers from its Alpine High play. We believe the recent price performance of the equity, down 27.5% in the past 30 days, is overdone and presents a buying opportunity with 28% upside.</p>

Exhibit 12

Impact Date	Event
	<p>NatAlliance wrote that the Company's CFPS was better than consensus "due to higher oil production, higher realized prices and lower cash costs." The analyst commented that the Company's 2018 production guidance was four percent below consensus and "[i]nvestors [a]re [c]oncerned [w]ith [t]he [l]ack [o]f [o]il [g]rowth [i]n 2018".¹⁴⁷</p> <p>We maintain a Hold Rating and a \$38 target on Apache Corp (APA, NYSE- \$34.84). Apache has reasonable assets and an ok balance sheet, but growth is below peers and its Permian assets are gassier.</p> <p>4Q17 Cash Flow Per Share Was \$0.08 Above Consensus. 4Q17 CFPS of \$1.96 was \$0.08 above Consensus due to higher oil production, higher realized prices and lower cash costs. APA's 4Q17 production of 440,201 Boepd was 0.5% above Consensus, and oil production of 242,580 Bopd was 3% above Consensus. 4Q17 CapEx of \$873 mm was 1% above Consensus of \$866 mm.</p> <p>2018 Production Guidance Was 4% Below Consensus Mainly on Gas/NGL's While CapEx Was Down 3% From The Prior Budget. APA's 2018 production guidance of 448-469,000 Boepd is 4% below Consensus, but oil volume guidance of 243,500 Bopd was only 0.5% below Consensus. 2018 CapEx guidance was lowered by 3% to \$3.0 billion and was 4.5% below Consensus.</p> <p>Investors Are Concerned With The Lack Of Oil Growth In 2018, But We Think Guidance Is Likely Conservative. APA expects to grow Permian oil volumes 9% YoY in 2018, which implies a 1% reduction vs 4Q17 levels. APA plans to spend just over \$900 mm in the Midland and Delaware Basin in 2018 on oil wells so we think APA is likely to beat that guidance.</p> <p>APA Also Announced A 3 Year Production/CapEx Outlook Which Is Very Alpine High Heavy. APA gave a first look at its three-year plan and APA expects to grow its US production volumes at a 19-22% CAGR between 2017 and 2020 with nearly all of the growth focused in the Permian</p>

¹⁴⁷ NatAlliance, "Apache Corporation, Solid 4Q17 Cash Flow, We Think Permian Oil Growth Guidance In 2018 Is Likely Conservative," February 22, 2018.

Exhibit 12

Impact Date	Event
	<p>Basin with a very outsized allocation to Alpine High. International volumes are expected to see a shallow decline. APA expects to accomplish this plan with average CapEx of \$2.85 billion over the next three years, including midstream investment at Alpine High, which implies reductions in spend in 2019-2020 vs. its \$3.0 billion CapEx budget in 2018.</p> <p>Permian Well Results Continued To Look Solid. APA's latest Midland Wolfcamp B wells had 30-day average IP rates of 1,344 Boepd (76% oil), which were 7% below 3Q17 results, but on 15% shorter laterals. Apache also reported 12 new Delaware Basin wells with average 30-day IP rates of 1,608 Boepd (56% oil), which were 11% better than a 3 well pad in 3Q17. At Alpine High, 2 new wet gas wells with 1 mile laterals had 30 day average IP rates of 1,175 Boepd (25% oil), which were a solid improvement. 6 new dry gas wells at Alpine High also had 30-day average IP rates of 10 MMcf/gpd, which were a little below prior results.</p> <p>There Are Potential Catalysts Through Better Permian Wells Or A Midstream Monetization At Alpine High. It is still early days at Alpine High, and APA is likely to improve the asset through better wells, inventory derisking and lower costs. However, most of the acreage is in the wet gas window, and the returns aren't yet as proven as other parts of the Permian. APA also has some pretty solid acreage in the Midland Basin and the move to longer laterals should continue to improve returns. APA seems quite confident that a midstream monetization at Alpine High will happen in 2018, which would be bullish and reduce CapEx.</p> <p>Balance Sheet Leverage Is In-Line With Peers. APA's leverage is in-line with 2018 Net Debt/EBITDA of around 1.7x. However, the company has excellent liquidity with cash of nearly \$1.7 bn and an undrawn \$3.5 bn revolver. We expect APA to continue to outspend cash flow for the immediate future which should burn through a little of the cash by YE18, though asset sales would bridge the gap. APA is also a little lightly hedged in 2018, which exposes the company to potential commodity weakness.</p> <p>APA Trades At A Discounted Multiple Based On Lower Growth. Apache trades at a discounted multiple vs. peers with a 2018 TEV/DACF multiple of 5.7x at \$60/\$2.75 based on lower growth. This multiple also doesn't capture the full earnings power of Alpine High or its growing</p>

Exhibit 12

Impact Date	Event
	<p>midstream business. APA also reflects \$56 WTI based on our NAV, which is a discount to peers. Our \$38 target is based on a blended 5.5x multiple of 2018 DACF and our \$42 NAV estimate (based on \$60/\$3.00).</p> <p>RBC wrote that the Company’s “4Q17 results were slightly better than moderated expectations” but “the 3-year outlook likely is viewed bearish because of lower-than-expected production, especially in the Alpine High development”:¹⁴⁸</p> <p>Bearish Our View: 4Q17 results were slightly better than moderated expectations. However, the 3-year outlook likely is viewed bearish because of lower-than- expected production, especially in the Alpine High development. Lower spending in 2019-2020 could explain some of the variance but it could also be related to timing of midstream development of capacity to deliver to market.</p> <p>4Q17 recurring EPS/CFPS of \$0.33/\$1.98 beat our \$0.19/\$1.90 and the \$0.22/\$1.91 consensus estimates. The EPS/CFPS beat relates mostly due to lower non-cash DD&A (EPS) and lower cash operating costs (EPS/CFPS).</p> <p>In early January, APA reduced guidance from the prior 368-380 Mboe/d range reflecting down time and underperformance of wells in the North Sea, higher tax barrels (high Brent pricing), and strong Permian Basin production. 4Q17 adjusted production for Egypt tax barrels and noncontrolling interest of 362 Mboe/d (194 Mbbl/d oil) was in line with our 361 Mboe/d (192 Mbbl/d) model and at the upper end of the recently updated 356-364 Mboe/d guidance.</p> <p>2018 Guidance The 2018 capital budget of \$3.0 billion is slightly lower than APA’s preliminary guide of \$3.1 billion which was based on \$55/bbl WTI and \$3/Mcf gas. Alpine High midstream investment remained \$500 million.</p>

¹⁴⁸ RBC Capital Markets, “Apache Corporation, 4Q17 Earnings Beat but 3-Yr Outlook a Bit Soft,” February 22, 2018, 9:08 AM.

Exhibit 12

Impact Date	Event
	<p>Production of 48-469 Mboe/d (375-395 adjusted) was 7% below our model and 4% below Street consensus estimates. The variance to our model is both the US and international operations.</p> <p>The US hydrocarbon production mix of 39%/22%/39% (oil/NGL/gas) was slightly more oily than our 36%/26%/38% model.</p> <p>Cash lease operating costs of \$8.60-8.80/boe is in line with our \$8.70/ boe model.</p> <p>Long-Term Outlook The company provided a 3-year outlook that provided capital spending, production, and returns metrics from 2018-2020.</p> <p>Total capital expenditures are planned at \$8.5 billion, including \$1 billion for midstream. This is below our/consensus \$9.5 billion expectations.</p> <p>Production in 2019 of 410-440 Mboe/d is below our 471 Mboe/d model. Much of this variance is in Alpine High, where in 2019 we were modeling 130 Mboe/d, compared to new guidance of 85-100 Mboe/d.</p> <p>Scotia wrote that the Company’s EPS and EBITDA topped its estimates and consensus while production “was within 1% of our estimate.” However, the analyst commented that the Company’s “[p]roduction [guidance] for 2018 is coming in approximately 5% below our estimate,” in contrast to “many other large-cap companies [which were] exceeding expectations on the production side”.¹⁴⁹</p> <p>QUICK TAKE: While the quarter was a beat, all eyes are focused on a 2018 outlook and operational update that fail to ignite a positive response to the name. Production for 2018 is coming in approximately 5% below our estimate, although the silver lining is that the budget is below our assumption as well. However, with many other large-cap companies exceeding expectations on the production side while not extending their budgets, the optics are negative on</p>

¹⁴⁹ Scotia Howard Weil, “Apache Corporation, Outlook and Operations Update Fail to Excite,” February 22, 2018, 11:01 AM.

Exhibit 12

Impact Date	Event
	<p>a relative basis. There is also no definitive commentary on free cash flow projections outside of the dividend and intentions for a repurchase program. Lastly, the operational update fall a bit short in the Alpine High and Midland, balanced out somewhat by the Delaware, but with so much capital being directed to the prior two plays, results need to more appealing to drive shares.</p> <p>KEY POINTS</p> <p>Financials Beat. APA reported 4Q17 EPS and EBITDA of \$0.33 and \$1.1 billion versus SHW of \$0.19 and \$918 million and consensus of \$0.21 and \$916 million. Production was within 1% of our estimate while realized pricing came in higher than expected.</p> <p>2018 Guidance Underwhelms. The company will spend around \$3 billion in 2018, including \$500 million in Alpine infrastructure, to generate 7% to 13% growth globally. Consensus and SHW were looking for a higher production trajectory with guidance 4-5% below estimates.</p> <p>3 Year Outlook Focused on Returns. In total, through 2020, the company expects to spend \$7.5 billion, plus \$1 billion of Alpine High midstream spend. This spend level produces a growth CAGR of 11% to 13% worldwide with the Permian expected to grow 26% to 28% per year. This capital plan APA estimates will yield CROIC of 18%, 20%, and 22% respectively in 2018, 2019 and 2020.</p> <p>Alpine High Results More of the Same. In the quarter, APA brought online 8 wells total. On the Dogwood State pad, the company turned online 3 Woodford and 3 Barnett wells with an average 30 day IP per lateral foot of 342 Boe (100% gas). 2 additional wells in the Woodford came online at 1,709 Boe/d and had a 25% oil cut.</p> <p>Societe Generale wrote that “APA delivered solid 4Q17 fiscal and operating results,” but “investors have reacted negatively to today’s news, perhaps because of Alpine High gas growth, but they’ve overlooked large Waha basis hedges”:¹⁵⁰</p>

¹⁵⁰ Societe Generale, “Apache Corp, 4Q17 Adjusted EPS beat even with Forties outage. \$3 billion 2018 cap-ex flat, but targets 10% adj. BOE growth,” February 22, 2018, 11:03 AM.

Exhibit 12

Impact Date	Event
	<p>4Q17: Adjusted EPS/DCFPS (discretionary cash flow per share after common stock dividends) of \$0.33/\$1.73 were better than SGE of \$0.20/\$1.40 and Street of \$0.22/\$1.65. Reported 4Q17 EPS of \$1.19 included positive adjustments, the bulk of which were related to the US Tax reform act in addition to typical unrealized commodity derivative changes, minor asset sales (gains) and impairments. In 3Q17, adjusted EPS/DCFPS were \$0.04/\$1.46.</p> <p>Output QOQ, sans Canada, of 362.3 MBOE/d (54% oil, 14.4% Ngl's and 34.6% natural gas) was up 2% even with the Forties pipeline curtailment which reduced output 17 days and likely deferred 2% of output. More importantly, in the Permian, QOQ oil output rose 10% (Midland), Ngl's 4% and Natural gas 15%, likely from the Alpine High. Also, supplementing the QOQ volume improvements were stronger commodity pricing (oil +18%, natural gas 5.4% and 31% on Ngl's), and solid cost control, which caused an increase in QOQ EPS/DCFPS. Cap-ex of \$793MM was \$33MM above CFFO before working capital changes.</p> <p>2017: Adjusted 2017 EPS/DCFPS of \$0.24/\$6.17 were much improved over 2016 of \$(1.13)/\$5.00, and reflected improved volumes from continuing operations, better commodity netbacks and lower operating costs. Reported 2017 EPS was \$3.41 vs. \$(3.71) in 2016 and included typical adjustments mentioned above and the US Tax law changes recognized in 4Q17. At year end, APA had \$1.7 billion in cash (\$4.35/share) and LTD/Book capitalization ratio of 51.7%, and added to oil hedges since 3Q17 disclosure.</p> <p>Reserves and Finding costs: APA ended 2017 with 1.17 BBOE in proven reserves (13% PUDs) that were down 10% YOY, and included the sale of 205.6 MMBOE from the company's Canadian exit. Sans that sale, ending global reserves actually grew 6.3% YOY, primarily reflecting 10.6% US BOE growth that offset lower Egyptian reserves from PSC effects and 1.7% reserve increase in the U.K.. YOY, US reserves increased 4.4% for oil, 16.3% for Ngl's and 14.8% for natural gas. More importantly, the bulk of the reserve adds were E&D based rather than from revisions, and APA had "All Sources Finding Costs" of \$11.89/BOE, which was much improved over 2016.</p>

Exhibit 12

Impact Date	Event
	<p>2018 cap-ex of \$3 billion (83% upstream, 23% international & 17% A.H. midstream) and is basically flat with 2017, and targets 10% BOE growth from same store sales. Midpoint BOE adjusted output (sans Egyptian equity stake) of 385MBOE/d is +10% YOY, reflecting 26% growth in the Permian which offsets lower international output.</p> <p>SG View: APA delivered solid 4Q17 fiscal and operating results despite some UK OBO issues. The three year cap-ex plan presented with targets midpoint output growth of 12% (20.5% US and 27% Permian), reflects improved shale well completions, and the Alpine High. To us, their capital plan matches their op strategy. Today, investors have reacted negatively to today's news, perhaps because of Alpine High gas growth, but they've overlooked large Waha basis hedges. Also Mgmt comp now more tied to shareholders.</p> <p>Societe Generale, in a later report, added that the Company's "stock sold off 6% on the day earnings were announced in response to short term production growth projections, planned E&D activity and midstream infrastructure installation at its Alpine High".¹⁵¹</p> <p>YTD, APA's stock has dropped about 18% vs the US Large Cap E&P peer group's 6%. Fourth quarter and year end results were just posted yesterday, which in our view were differential vs many peers. Why? APA delivered greater QOQ operating margins from the combination of higher commodity prices, stronger oil volumes, which were curtailed, and good unit cost controls. That said, the stock sold off 6% on the day earnings were announced in response to short term production growth projections, planned E&D activity and midstream infrastructure installation at its Alpine High.</p> <p>At year end, APA had \$1.7 billion in cash and a \$3.0 billion capex budget for 2018. At current strip pricing, there would be a \$500MM spending gap, but our estimates are after common stock dividends, which would be met from cash on hand. Through the commodity price downturn, APA "right sized" by selling non-strategic, global assets, refocusing on US shale plays for the</p>

¹⁵¹ Societe Generale, "Apache Corp, Returns focused, shareholder aligned, geographically diversified, fiscally conservative, and yet a peer laggard," February 23, 2018, 5:17 PM.

Exhibit 12

Impact Date	Event
	<p>bulk of future production growth (Midland, Delaware and the Alpine High), while using UK North Sea and onshore Egyptian operations as a source of free cash flow to help fund US shale growth activity. APA didn't issue new equity, nor did the board cut the common stock dividend (\$380MM/year).</p> <p>By being steadfast in their business model, which is organic, rather than acquisitive, as APA historically has been, management did something different, and that was to discover the Alpine High in the southwestern portion of the Delaware basin. It has a unique geologic/petrophysical origin, and the acreage had lain fallow. It had cheap entry costs. The problem was that in order to HBP the stratigraphic column, APA had to drill to the lowest known commercial formation, which is essentially Devonian in age, and had dry or liquids rich gas when the Street wants oil. In a stock market driven by incremental shale well news, APA's play was infrastructure constrained in terms of its 'new well news flow', and we believe the Street lacked an understanding of the Alpine High operating margins. In 4Q17, the Alpine High had 120 MMcf/d, and didn't suppress the company's reported results. The split was 7% oil, 83% natural gas, and 10% NGL.</p> <p>Today, many investors and analysts believe that being a 'single basin shale story' is nirvana in terms of potential operational and fiscal success. That perspective simply overlooks 'market crowding' as the industry ramps up E&D activity, in our view. No doubt, given initial gas production, the Street is less than enamoured of the Alpine High. In fact, since it announced the play, the stock has underperformed its peers by 29%.</p> <p>To us, that is the investment opportunity. APA is building out a midstream infrastructure that will be worth more than the capital invested to the company that can be monetized over the intermediate term as it finishes lease capture and begins field development. APA is focused on collective company returns on its global portfolio. On the basis of our 2018 DCFPS (discretionary cash flow per share after dividends) estimate, the stock is trading at 5.1x, which we consider inexpensive. Peers trade at 8.1x. So, the Alpine High is, in our view, a market disconnect.</p>

Exhibit 12

Impact Date	Event
	<p>Wolfe wrote that “Apache’s three-year outlook this morning accompanying its 4Q17 release likely raised more questions than answers and judging by stock performance through the day ... investors were left wanting more after the 2:00 ET conference call.” Wolfe lowered its price target for the Company to \$40 from \$52 “[a]fter revising our development and production growth assumptions” and commented that “[i]ncreasing lower margin production, declining oil, and an uncertain cash flow outlook keep us at Underperform”:¹⁵²</p> <p>Alpine High continues to raise question marks – Apache’s three-year outlook this morning accompanying its 4Q17 release likely raised more questions than answers and judging by stock performance through the day (down 6.3% vs. the XLE up 1.1%), investors were left wanting more after the 2:00 ET conference call. First blush the outlook reads impressively – 11%-13% production growth CAGR supported by 26%- 29% Permian growth. Digging deeper though and cracks unfold – The company’s guide on US oil production for 2018 is basically flat with the 2017 exit rate, with no sequential oil growth in the Permian. On the afternoon conference call, management mentioned that it believes a “hydrocarbon-agnostic valuation of the play” is the right approach – We disagree. Finding and developing hydrocarbons at low cost is crucial for E&Ps, but equally important is generating strong cash margins. After revising our development and production growth assumptions, we are maintaining our Underperform rating and lower our YE18 target to \$40 from \$52.</p> <p>While constraining investment outside the play – APA’s \$3.0Bn budget has ~\$2.3Bn going to the domestic portfolio, of which ~\$2.1Bn is allocated to the Permian. However, \$500Mn of this spend is for non-producing midstream spend, which will inevitably lower costs down the road (and could hopefully be monetized over time) but this non-producing spending and leasehold retention in the Alpine High is clearly limiting oil production growth potential in the Midland Basin (where results are encouraging). Management commented that most drilling dollars in the Alpine High are targeted at the Woodford interval, the deepest producing interval whereby drilling secures the shallower zones above it, but which also has the greatest gas cuts. Guidance from the company assumes Alpine High production mix consistent with the 4Q17 rate (7% oil, 13% NGL, 80% dry gas) which could be conservative (though mostly on gas vs. NGL) – With</p>

¹⁵² Wolfe Research, “Apache Corp., Was gonna grow oil but then I got (Alpine) high,” February 22, 2018.

Exhibit 12

Impact Date	Event
	<p>Alpine High contributing to basically the entirety of Permian growth through 2020, the implication is oil mix decreasing to 28% of Permian production vs. 49% in 2017, while dry-gas (exposed to Waha pricing) increases to ~46% of Permian mix vs. 28% in 2017.</p> <p>Which leaves APA outspending in 2018 and 2019 too – Apache guidance for outspend was consistent with October commentary – at \$60/bbl the company is getting to cash flow that covers upstream capex plus ~\$380Mn in dividend payments with ~\$500Mn of midstream outspend (at \$55/bbl cash flow covers upstream spend). The issue is that we forecast a similar outspend in 2019 at strip, without meaningful free cash payoff until 2021 (and this is assuming no major deterioration in Waha Hub pricing and improvement in NGL fundamentals). Increasing lower margin production, declining oil, and an uncertain cash flow outlook keep us at Underperform.</p> <p>News media attributed the decline in the Company’s stock price to its announcement.¹⁵³</p> <p>Following the Company’s disclosures on February 22, 2018, according to Bloomberg, the average of analysts’ price targets for Apache stock decreased to \$48.42 from \$50.65, or -4.40%. Of the 31 analysts who published investment ratings for the Company both before and after the earnings announcement, one upgraded its rating. (See Exhibit 5C.)</p> <p>Remark: Given that: (i) the Company’s “4Q17 results were slightly better than moderated expectations”,¹⁵⁴ and (ii) the Company’s “2018 production guidance [was] lower (and gassier) than expected” and the “2019-20 outlook also</p>

¹⁵³ See, e.g., *Bloomberg First Word*, “Apache Underperforms as Street Turns Focus to Alpine High,” February 22, 2018, 10:31 AM; *Seeking Alpha*, “Apache reverses, now -4% as Street turns focus to Alpine High,” February 22, 2018, 11:02 AM; *TheFlyontheWall.com*, “11:33 EDT Apache slips after issuing ‘underwhelming’ Permian outlookShares of...,” February 23, 2018.

¹⁵⁴ RBC Capital Markets, “Apache Corporation, 4Q17 Earnings Beat but 3-Yr Outlook a Bit Soft,” February 22, 2018, 9:08 AM. See also, e.g., BMO Capital Markets, “Apache, 4Q Better on Oil; 2018-20 Outlook Mostly In Line With Expectations,” February 22, 2018, 8:53 AM; Evercore ISI, “Apache, “Quietly Following Thru on Alpine, Market Looking for Clarity,” February 22, 2018, 12:20 PM; Bank of America Merrill Lynch, “Apache Corp, 4Q17 First look: EPS beat on tax; shift toward US gas remains primary headwind,” February 22, 2018, 10:24 AM.

Exhibit 12

Impact Date	Event
	fell well short of expectations,” ¹⁵⁵ the statistically significant Company-specific stock price decline on February 22, 2018 is consistent with that expected in an efficient market.
5/3/2018	<p>After market close on Wednesday, May 2, 2018, the Company announced its first-quarter 2018 financial results. For the quarter, Apache reported production of 440 mboe/d, revenue of \$1.73 billion, EPS of \$0.38, and adjusted EPS of \$0.32.¹⁵⁶</p> <p>The consensus estimate of the Company’s adjusted EPS was \$0.28.¹⁵⁷</p> <p>John J. Christmann IV, Apache’s chief executive officer and president, commented on the Company’s results:¹⁵⁸</p> <p style="padding-left: 40px;">During the first quarter, Apache delivered strong operational results and U.S. production significantly above guidance. Outperformance in the United States was driven by a combination of shorter completion cycle times, improving efficiencies and excellent performance from new wells.</p> <p style="padding-left: 40px;">Internationally, production was in line with our guidance, and our exposure to Brent oil pricing contributed to high margins, high cash returns and strong free cash flow. The first quarter was very good from an execution and cost-control standpoint, and we are seeing continued momentum into the second quarter</p>

¹⁵⁵ Credit Suisse, “Apache Corporation, 2018 and Longer-Term Guidance Disappoint on Underwhelming Permian Outlook,” February 22, 2018. *See also*, e.g., Deutsche Bank, “Apache Corp., APA 4Q17 - A Dream Deferred,” February 22, 2018, 12:03 PM; Jefferies, “Apache, 4Q Beat; Three-Year Outlook Unveiled,” February 22, 2018; RBC Capital Markets, “Apache Corporation, 4Q17 Earnings Beat but 3-Yr Outlook a Bit Soft,” February 22, 2018, 9:08 AM.

¹⁵⁶ Apache News Release, “Apache Corporation Announces First-Quarter 2018 Financial and Operational Results,” May 2, 2018. *See also* *GlobeNewswire*, “Apache Corporation Announces First-Quarter Financial and Operational Results,” May 2, 2018, 4:45 PM.

¹⁵⁷ *Bloomberg First Word*, “Apache First Quarter Adjusted EPS Beats Estimates,” May 2, 2018, 4:49 PM.

¹⁵⁸ Apache News Release, “Apache Corporation Announces First-Quarter 2018 Financial and Operational Results,” May 2, 2018.

Exhibit 12

Impact Date	Event		
	The Company also updated its fiscal year 2018 guidance and provided second quarter 2018 guidance, as follows: ¹⁵⁹		
	FY 2018 Guidance		
		Previous	Updated
	United States Daily Production (mboe/d)	245 – 255	250 - 258
	United States Product Mix: oil/NGLs/Natural Gas	39%/22%/39%	40%/22%/38%
	Cash Taxes (millions)	\$150 - \$175	\$175 - \$225
	2Q 2018 Guidance		
	Production		
	United States	248	
	International (Adjusted)	<u>135</u>	
	Total Adjusted Production	383	
	Capex (millions)	\$800	
	Cash Exploration Costs (millions)	\$30	
	General and Administrative Expenses (millions)	\$120	
	Financing Costs (millions)	\$95	
	Christmann commented on the Company’s guidance: ¹⁶⁰		
	We are very pleased with our results year to date, as our methodical approach to delineation and development is generating improved capital efficiency, higher returns and attractive production growth. I believe 2018 will be a year in which Apache differentiates itself operationally, particularly in the Permian Basin, where our measured pace is enabling the timely integration of key learnings and the ability to more effectively manage the inflationary service cost environment		

¹⁵⁹ Apache News Release, "Apache, First-Quarter 2018, Financial and Operational Supplement," May 2, 2018.

¹⁶⁰ Apache News Release, "Apache Corporation Announces First-Quarter 2018 Financial and Operational Results," May 2, 2018.

Exhibit 12

Impact Date	Event
	<p>The Company held a conference call with investment analysts the following morning.¹⁶¹</p> <p>Bank of America Merrill Lynch wrote that the Company’s “1Q18 looks operationally solid” as adjusted EPS was higher than its and consensus estimates and production “topped guidance.” The analyst commented that the Company’s “[h]igher production guidance [wa]s being driven by improving capital efficiency from its new Midland completion design and a 20% reduction in Alpine well costs compared to 2017” but the “[g]as mix shift remains [Apache’s] primary headwind”.¹⁶²</p> <p>EPS beat on US production; FY guided higher Adj. EPS of \$0.32 beat consensus of \$0.28 (BofAMLe \$0.12). Compared to our EPS estimate, the delta was mainly lower DD&A (+13c). Oil and gas production topped guidance by 9 Mboe/d (+4c), with lower LOE (+2c) partially offset by weaker price realizations (-4c). Cash flow per share, at \$2.08, compared with consensus of \$1.92. Total production averaged 440 Mboepd (flat qoq), with outperformance in the US driven by a new Midland completion design, with shorter cycle times on larger fracs and the completion of SCOOP wells drilled in 2017. FY US guidance has been raised to 250-258 Mboepd from 245-255 Mboepd, with an oil yield marginally better, at 40% oil/22% NGLs/38% gas vs. 39%/22%/39% prior. All-in-all, 1Q18 looks operationally solid, but with an outlook still anchored on Alpine High gas growth. We adjusted our estimates following the 1Q results.</p> <p>Gas mix shift remains primary headwind Higher production guidance is being driven by improving capital efficiency from its new Midland completion design and a 20% reduction in Alpine well costs compared to 2017. In the Midland, APA reported an encouraging test from its first Wolfcamp C producer, with a 30-day</p>

¹⁶¹ Thomson Reuters, *StreetEvents*, “APA – Q1 2018 Apache Corp Earnings Call, EVENT DATE/TIME: MAY 3, 2018 / 3:00PM GMT,” May 3, 2018, 11:00 AM.

¹⁶² Bank of America Merrill Lynch, “Apache Corp, 1Q18 Earnings recap: solid quarter, higher guidance, but outlook still gas dominant,” May 3, 2018, 7:20 AM.

Exhibit 12

Impact Date	Event
	<p>rate of 196 Boe/d (70% oil) per 1,000 ft of lateral. The well is located in its Azalea area is Upton County and is part of its six-well Schrock pad. While early, APA sees the result potentially adding several hundred locations, which we view as positive vs. the bulk of planned growth that is anchored on Alpine High. APA's started its first multi-well test in the Alpine High wet gas window (the four-well Chinook pad), with an average 30-day two-stream rate of 1,366 Boe/d (14% oil) per well, but with incremental production still obviously dominated by gas. By our current estimates, APA's US oil mix drops to just 27% by 2022 from 46% in 1Q18, providing a meaningful offset to multiple compression and DACF per share outlook vs. peers.</p> <p>Issues for tomorrow's call Alpine High midstream monetization, gas takeaway from Alpine production and prospects for a reset in Midland growth from new Midland completions. Our rating remains Underperform due to an outlook skewed toward natural gas, despite APA's legacy leverage to oil that is currently 55% of production.</p> <p>BMO wrote that the Company "reported a better 1Q18 with total and oil production above estimates, but capex was also elevated." The analyst observed that the Company's EPS was better than its estimate and consensus and EBITDAX was "in line" with its estimate. BMO noted that the Company's "[p]roduction guidance for 2018 was increased on higher U.S. volumes, while oil mix was bumped 100bps higher, with the 2018 budget unchanged".¹⁶³</p> <p>Bottom Line: Apache reported a better 1Q18 with total and oil production above estimates, but capex was also elevated. The oil beat was broad-based, while Alpine High volumes were below our model. Production guidance for 2018 was increased on higher U.S. volumes, while oil mix was bumped 100bps higher, with the 2018 budget unchanged. Net, net a good update given low expectations, and we'll look for Alpine High midstream and Permian takeaway commentary on the call.</p> <p>Key Points</p>

¹⁶³ BMO Capital Markets, "Apache, 1Q Vols Better, but Capex Above; 2018 U.S. Oil/BOE Raised," May 2, 2018, 8:04 PM.

Exhibit 12

Impact Date	Event
	<p>Strong 1Q With Volumes Better, but on Higher Capex. Apache reported 1Q18 EPS of \$0.32, above our/consensus \$0.28. DCF of \$799mm was below our \$839mm, while EBITDAX (after MI) of \$1,026mm was in line with our \$1,036mm. Production of 440MBoe/d was above our/consensus 434/435MBoe/d, with the difference versus our model broad-based - Permian (+2MBoe/d), Mid-Con (+4MBoe/d), Egypt (+2MBoe/d), North Sea (-1MBoe/d). Oil of 241MBo/d beat our/consensus 235/236MBo/d, with Permian contributing, as Alpine High at 26MBoe/d (vs. 20MBoe/d in 4Q) was below our 29MBoe/d estimate. Oil and NGL realizations were better, while gas was in line. Cash costs were slightly lower, as was DD&A. Capex was elevated at \$948mm (costs incurred) versus our \$834mm estimate, with Permian and Mid-Con \$69mm and \$22mm, respectively, above our estimate. O&G capital investment of \$857mm was 29% of Apache's \$3.0Bn 2018 budget.</p> <p>2018 BOE/Oil Guidance Increased. Apache's 2Q guidance of 383MBoe/d (non-GAAP) is above our 379MBoe/d, with the difference being higher U.S. volumes. A strong 1Q and better 2Q guide results in 2018 U.S. guidance raised by 5MBoe/d (2%), while oil mix also improved to 40% (vs. 39%). Capex in 2Q of \$800mm is above our \$765mm estimate, but the 2018 budget was unchanged, although 1H18 is implied to be ~53% of planned spend.</p> <p>Operational Details. Apache announced its first Wolfcamp C well achieved an IP30 of 196Boe/d (70% oil) per 1,000', which could lead to the additional of several hundred locations. Alpine High highlights included the four-well Chinook pad (IP30 of 286Boe/d (14% oil) per 1,000') and two-well Mohican Unit (IP30 of 564Boe/d (1% oil) per 1,000'), while well costs are noted to be 20% below 2017 averages. No commentary of Permian takeaway or Alpine High midstream was provided, although we expect to be a focus of the call.</p> <p>Cowen wrote that the Company's "1Q18 total production beat estimates and was oilier than expected" and cash flow also "beat." The analyst opined that the Company's "[i]ncreased full year guidance is positive but we believe investor[s'] negative view on natural gas prices will overshadow a solid 1Q18".¹⁶⁴</p>

¹⁶⁴ Cowen and Company, "Apache Corporation, 1Q18 Earnings at a Glance," May 2, 2018.

Exhibit 12

Impact Date	Event
	<p>Neutral. 1Q18 production and cash flow beat. International operations continue to deliver strong cash flow. US production was helped by improvements in the Midland. Increased full year guidance is positive but we believe investor [<i>sic</i>] negative view on natural gas prices will overshadow a solid 1Q18.</p> <p>Stock Thoughts 1Q18 total production beat estimates and was oilier than expected. International production was in-line with guidance and continues to generate significant cash flow for the company. While increase oil mix in the US is positive, investors will focus on Alpine High and how APA intends to solve the infrastructure challenge to low Waha natural gas prices.</p> <p>What to Expect on the Call U.S. Production Exceeds Expectations: 1Q18 U.S. production (including GOM) of 232.5 Mboe/d exceeds our estimate of 228.9 Mbod/d. The company attributes this beat to shorter completion cycle times, improving efficiencies, and strong initial production rates from new wells. As a result, annual guidance was raised with the expectation of a slightly oilier 2018 mix. We expect discussions on the company's outlook for differentials in the Permian, for both oil and gas.</p> <p>Alpine High: Well costs in the region, in 1Q18, were 20% lower than in 2017. The company is currently flowing back multi-well pattern and spacing test. We would expect discussion on how the well costs reduction was achieved, if there are additional potential cost improvements, and when the company expects to receive results from these tests.</p> <p>New Completion Designs in Midland: In the Midland, the company is focusing on optimizing stage and cluster spacing in order to improve early-time well production; wells are being stimulated faster resulting in cost savings. We expect questions on proppant (type, availability, and intensity) and the company's latest thoughts on inflation.</p> <p>Midland Wolfcamp C: The company announced initial results from its Azalea field Wolfcamp C well (30-day peak IP of ~1,150 boe/d, 70% oil). Based on the company's early-stage</p>

Exhibit 12

Impact Date	Event
	<p>assessments, this could result in several hundred additional locations. We expect questions regarding completion details and well costs.</p> <p>Guidance Highlights</p> <p>U.S. production guidance was raised from 245-255 Mboe/d to 250-258 Mboe/d. This compares to our estimate of 249 Mboe/d. The company also stated they expect a slight increase in the U.S. oil mix in 2018.</p> <p>FY18 capex guidance of \$3,000MM unchanged.</p> <p>Credit Suisse wrote that the Company's adjusted EPS beat its estimate and consensus but CFPS was short of consensus and "well below" the analyst's estimate "on much higher than expected cash taxes." The analyst commented that Apache guided to second quarter production volumes above its and consensus estimates:¹⁶⁵</p> <p>1Q EPS and production beat but CFPS misses. Clean EPS of \$0.32 beat consensus/CSe \$0.28/\$0.25, but CFPS of \$1.77 missed the Street's \$1.97 & was well below CSe \$2.03 on much higher than expected cash taxes. EBITDX was flat QoQ but exceeded consensus by ~15%. Production of ~440 MBoed exceeded guidance of 433 MBoed and was ~2% above CSe/cons on higher liquids production. Realized prices of \$44.17/Boe were well above expectations. Unit costs rose 9% YoY but were 2% below CSe.</p> <p>Raises its 2018 production guidance with capex unchanged. Given the 1Q beat on higher US oil production driven by improved cycle times, efficiency, & well performance, APA raised 2018 US volume guidance by ~4 MBoed to 250-258 MBoed (up ~23% YoY) & kept international volumes unchanged. This enabled a ~4 MBoed increase in companywide production guidance to 453-472 MBoed (+6-11% YoY. We raised 2018E production by ~10 MBoed to ~463 MBoed. While 1Q spending of \$857MM & 2Q capex guidance of \$800MM are on a pace to exceed the full year 2018 capex budget of \$3.0 billion, APA expects 2H18 spending levels to decline.</p>

¹⁶⁵ Credit Suisse, "Apache Corporation, 1Q EPS & Production Beat But CFPS Misses; Raises 2018 Volume Outlook Driven by U.S.," May 3, 2018.

Exhibit 12

Impact Date	Event
	<p>Other takeaways from 1Q18 results: 1) guided to 2Q volumes (including 73 MBoed of Egypt tax barrels & non-controlling interest) of ~456 MBoed, above consensus of ~448 MBoed & prior CSe ~453 MBoed; 2) Alpine High well costs fell 20% in 1Q from 2017 avg. of ~\$8MM, as APA continues to reduce well costs to \$6MM this year & ultimately to the low end of its \$4-\$6MM guidance range; & 3) We made minor adjustments to our 2018-20 CFPS estimates.</p> <p>Fully valued vs. peers. Our \$40 target price is based on ~6.0x normalized 2019E DACF and implies ~0.70x NAV.</p> <p>Deutsche Bank wrote the Company “posted a solid 1Q beat” as “[s]trong 1Q US volumes ..., realizations ..., and costs ... drove a modest cash flow beat.” The analyst observed that Apache’s adjusted EPS beat its estimate and was in line with consensus. Deutsche Bank commented that the Company’s “increase to FY US production guidance ... and indication of a slightly oilier mix is encouraging” but “[g]uidance for 2Q came in a hair shy of our expectations”.¹⁶⁶</p> <p>Strong US production drives 1Q beat APA posted a solid 1Q beat, led by strong production in the Mid-con (+6 Mboed vs. DBe) and a modest beat in the Permian (+3 Mboed). An increase to FY US production guidance (254 Mboe/d at midpoint vs. prior 250) and indication of a slightly oilier mix is encouraging, but with cash flow still running a deficit (- \$58mm vs. DBe +\$25m pre-dividend, on higher capex), near-term focus remains on a potential midstream monetization opening the door to potential shareholder returns. Hold. Positive: Strong 1Q US volumes (232 Mboed vs. DBe 223), realizations (+\$1.93/boe vs. DBe), and costs (-\$1.70/boe) drove a modest cash flow beat (\$2.08 CFPS vs. DBe \$2.02); Solid result in Midland Basin Wolfcamp C (1,150 boe/d IP30) could derisk hundreds of locations. Negative: Higher capex (\$857m vs. Street \$765mm) drove a FCF deficit.</p> <p>What to look for on the calls:</p>

¹⁶⁶ Deutsche Bank, “Apache Corp., APA 1Q18 - Back in Black (Oil),” May 3, 2018, 1:09 AM.

Exhibit 12

Impact Date	Event
	<p>US guidance increased: Driven by a 1Q beat (232 mboe/d vs. guided 223; US oil volumes 100 mb/d vs. DBe 97), FY18 US volumes were raised ~2% (250-258 mboe/d vs. 245-255 mboe/d prior), as an active program in the Midland Basin (17 completions vs. FY18 guide 55 to 60) helped drive volumes higher. Included in one of the multi-well pads was a Wolfcamp C well (1,150 boe/d, 70% oil) that may possibly lead to the addition of several hundred locations. We look to clarify what further testing is needed before locations are added, and how Wolfcamp C testing fits into development plans over the remainder of 2018. Initial multi-well wet gas window wells in the Alpine High came in inline with type curve expectations, and on the call we look to clarify timing of pattern and spacing tests that may serve as catalysts later in 2018.</p> <p>International Ops: Guidance for 2Q came in a hair shy of our expectations (135 mboe/d vs. DBe 137), perhaps driven by a still rising crude price, and associated higher Egyptian royalties. We look to clarify on the call. In the North Sea, we look to see how the 10 MMboe Garten discovery will impact capital allocation and production guidance in 2019 and 2020.</p> <p>Cash Flow: FY capex guidance was unchanged (\$3bn) despite the production guidance raise, and a 1Q total (\$857 mm) above DBe/St \$748/ \$787 mm, likely driven by the higher well completion total in the Midland Basin. The \$153 mm cash burn in 1Q is likely to subside as growth barrels are added over the course of the year, and we look to clarify our CF breakeven assumption on the call. The company did not provide an update on midstream monetization, though we'd anticipate a question or two around that as well</p> <p>1Q Results: Adj EPS of \$0.32/sh beat/inline DBe/St ests. \$0.20/\$0.33 was flattered by a DD&A and cash tax beat vs. DBe. Positive/negative NGL price/GTP expense variances likely reflect impact of ASC 606, though we note an oil realization beat more than offset a \$0.40/boe miss on cash costs (cash costs likely beat DBe after adjusting for ASC 606, we look to clarify on the call). Details within.</p> <p>Evercore wrote that the Company's first quarter production was "slightly above our/street estimates," "O&G revenues were inline with our expectations as lower costs offset the volume beat, while costs came in mixed but higher overall," and adjusted CFPS was "~3% below" the analyst's estimate. The analyst noted that "[p]rimarily to</p>

Exhibit 12

Impact Date	Event
	<p>reflect better than expected 1Q Permian volumes, APA upped the 2018 US production guide” and Apache’s “US production mix shift moved slightly oilier.” Evercore commented that “the market awaits clarity on timing and structure of a potential deal ... to monetize some portion of midstream assets”:¹⁶⁷</p> <p>APA stays the course, market waiting on midstream monetization As the upstream program at Alpine High evolves toward development, messaging continues to center around a drive to lower well costs, improve well productivity, and expand resource. Midstream buildout continues apace while the market awaits clarity on timing and structure of a potential deal. Today management reiterated that plans to monetize some portion of midstream assets should be considered in the context of planned outspend and the objective of eliminating future funding obligations while retaining upside via a significant equity stake and/or control. We continue to think a midstream deal has the potential to narrow a relatively wide valuation range for the underlying upstream asset (for better or worse) as a deal likely brings further clarity on the upstream growth trajectory and forward cost structure (transport), (likely reduced) near-term midstream capital obligations to APA, and generally providing the market with perspective on upstream potential implied by deal value. While we think the market’s sense of potential proceeds also carries a wide range and depends on structure, APA is not short cash and has clearly telegraphed a return of cash to shareholders is on the table.</p> <p>1Q18 Results. APA reported total 1Q18 production of 440 mboe/d (incl. NCI), slightly above our/street estimates of 438/435 mboed. Total US production of 232 mboe/d was above our 222 mboed estimate (US oil at 99 mbpd vs our 97), while international volumes were ~inline with our estimates. O&G revenues were inline with our expectations as lower costs offset the volume beat, while costs came in mixed but higher overall (GTP partly driven by accounting changes). Thus, adjusted CFPS of \$2.43 was ~3% below our \$2.54. Consolidated O&G capex of \$909mm exceeded our \$856mm estimate.</p> <p>Takeaways from the release / call.</p>

¹⁶⁷ Evercore ISI, “Apache, 1Q18 Results Review,” May 3, 2018, 4:21 PM.

Exhibit 12

Impact Date	Event
	<p>1) 2018 plan updated. Primarily to reflect better than expected 1Q Permian volumes, APA upped the 2018 US production guide to 254 mboed (from 250 mboed), with capex unchanged at \$3.0 Bn for the full year (2Q capex guided to \$800mm APA-only). Cost items were generally maintained (cash taxes upped by \$25-\$50mm to \$200mm at midpoint), but US production mix shift moved slightly oilier (from 39% to 40%). While not cited as the specific driver for 2018, management noted on today's call that the Alpine High development program would see additional activity in the Woodford and shallower zones where oil and liquids content is higher.</p> <p>2) Confidence in a midstream deal by YE18. Alpine High midstream buildout continues according to plan, with 121 miles of gathering line, 33 miles of 30" trunkline, 34 tank batteries, and 780 mmcf/d of inlet capacity all in place. APA noted plans to pull forward cryo buildout initially planned for mid-2019 into earlier in the year with implications for NGL production from the play. While light on specifics, management continues to express confidence in some form of midstream monetization by YE18 amid a formal process underway and drawing interest from a 'broad range' of buyers. Our sense from the call is that retaining control and a material equity stake remains a priority for APA, with high visibility on upstream investment underscoring confidence in midstream value over the coming 5+ years.</p> <p>Jefferies wrote that "APA reported an EPS beat," versus its estimate and consensus, "driven by higher oil production, higher liquids pricing, and lower operating costs, offset partially by higher taxes." The analyst also noted that the Company's "FY18 US production guidance and oil mix guidance were raised, while the FY18 capital budget was unchanged".¹⁶⁸</p> <p>Positive. APA reported an EPS beat on higher production and pricing. FY18 US production guidance and oil mix guidance were raised, while the FY18 capital budget was unchanged.</p> <p>APA Reports an EPS Beat. APA reported adjusted EPS of \$0.32, ahead of JEF estimates of \$0.31 and consensus at \$0.28. Production of 440.3 Mboe/d was ahead of both consensus at 435 Mboe/d and our 434 Mboe/d estimate. Oil volumes totaled 241.4 Mbbl/d, which was also ahead of our 233 Mbbl/d estimate and consensus at 237 Mbbl/d. The EPS beat vs. our estimate was</p>

¹⁶⁸ Jefferies, "Apache, 1Q18 Beat, US Production Guidance Raised," May 2, 2018, 7:35 PM.

Exhibit 12

Impact Date	Event
	<p>driven by higher oil production, higher liquids pricing, and lower operating costs, offset partially by higher taxes. Adjusted EBITDA of \$1,087 MM came in ahead of our \$948 MM and consensus of \$957 MM.</p> <p>Updated Guidance. APA raised FY18 US production guidance to 250-258 mboe/d (from 245-255 mboe/d), while the capital budget of \$3 Bn is unchanged. The US oil mix was raised to 40% from 39%. 2Q US production guidance of 248 mboe/d is ahead of our 243 mboe/ d estimate.</p> <p>Midland Basin Ops. APA placed 12 Wolfcamp wells online across three pads in the Midland Basin, with average 30d rates of 173 boe/d per 1,000' (75% oil). APA tested its first Wolfcamp C well, which came online at a 30d rate of 196 boe/d per 1,000' (70% oil). APA is utilizing new completion designs with optimal stage and cluster spacing, which has improved early results. APA averaged five rigs and two frac crews during 1Q.</p> <p>Alpine High Ops. Alpine High production increased 33% sequentially to 26 mboe/d. APA noted that developing multi well pads and changes to well design are increasing efficiency within the play and reducing well costs, with 1Q18 well costs 20% below the 2017 average. APA brought on its first multi well test in the wet gas window, with four wells coming online at an average 30d rate of 1,366 boe/d (14% oil). APA averaged seven rigs and one frac crew in Alpine High.</p> <p>International Ops. In Egypt, APA completed seven wells with 24hr IP rates over 1,000 boe/ d. Thus far, 20% of the 2.6 MM acre 3D seismic survey in the Western Desert is complete. In the North Sea, APA announced the discovery of the Garten prospect, which encountered more than 700' of net oil pay (100% APA working interest), with drilling, completion, and tie back cost estimated at \$60 MM. 1Q18 production in the North Sea was impacted by gas compressor outages, weather, and the Forties pipe outage.</p> <p>Key Themes for the Call. Additional color on potential Wolfcamp C inventory</p>

Exhibit 12

Impact Date	Event
	<p>Reduction in Alpine High well costs by 20%</p> <p>Higher 1Q capex (\$887 MM vs consensus at \$780 MM) than expectations</p> <p>JP Morgan wrote that the Company reported “a 6% cash flow beat and 2% higher oil volumes.” However, the analyst observed that “it wasn’t a perfect print as capex ran hot ..., Alpine High missed ..., and the source of the upside production surprise was largely driven by the less important future growth drivers of the company.” The analyst commented that Apache made “a full-year guidance bump” and the “2Q18 production guide [was] above expectations”.¹⁶⁹</p> <p>JPM View: Stock Reaction—Positive. We believe the combination of upside financials, including a 6% cash flow beat and 2% higher oil volumes will carry the day, particularly on the back of a full-year guidance bump. While it wasn’t a perfect print as capex ran hot (+9% higher than Street), Alpine High missed (8% lower than our forecast at 28.6 MBoe/d), and the source of the upside production surprise was largely driven by the less important future growth drivers of the company (Mid-Continent/Gulf Coast/GoM), we believe the shares should be okay as APA remains a low expectation story. We expect the focus of tomorrow’s call to be on the prospects for a midstream monetization of its Alpine High midstream assets near-term and the potential use of proceeds (debt reduction, buyback, etc.).</p> <p>APA raises 2018 production guide: APA raised its 2018 production guidance by 0.9% to 453 to 472 MBoe/d from the previous range of 448 to 469 MBoe/d. The midpoint of the 2018 production guide is 1.0% above consensus of 458 MBoe/d. The full year 2018 capex guidance is unchanged at \$3.0 billion. APA also raised its full year U.S. oil mix by 100 bps to 40% while leaving its International oil mix unchanged at 70%.</p> <p>2Q18 production guide above expectations: APA’s 2Q18 adjusted production guide of 383 MBoe/d is 15 MBoe/d or 4.1% above JPMc at 368 MBoe/d. Higher U.S. production was the</p>

¹⁶⁹ JP Morgan, “Apache Corp, 1Q18 Flash: Upside Financials and Guidance Bump Will Likely Trump Alpine High Volume Miss; Stock Reaction-Positive - ALERT,” May 2, 2018, 9:04 PM.

Exhibit 12

Impact Date	Event
	<p>primary driver of the 2Q18 upside vs. expectations. APA's 2Q18 US production guide of 248 MBoe/d exceeded JPMe by 14 MBoe/d or 6.0%. APA's 2Q18 adjusted International production guide of 135 MBoe/d exceeded JPMe by 1 MBoe/d or 0.7%. The 2Q18 capex guide of \$800 MM was 6% above our JPMe of \$755MM and exceeded the consensus forecast of \$750 MM by 7%.</p> <p>APA bumps U.S. production forecast higher: APA's 1Q18 U.S. production of 232 MBoe/d exceeded guidance by 9 MBoe/d (+4%) and exceeded JPMe by 8 MBoe/d (+4%). Relative to our model, the upside surprise was driven by higher Mid-Continent/Gulf Coast and GoM volumes as Permian production was essentially in-line. APA raised its 2018 U.S. production guidance by 4 MBoe/d or 1.6% to the range of 250 to 258 MBoe/d. The midpoint of the 2018 U.S. production guide is 5 MBoe/d, or 2.0%, above JPMe at 249 MBoe/d.</p> <p>2018 cost guide unchanged excluding cash taxes: APA raised its 2018 cash tax guidance by \$37.5 MM, or 23%, to \$175 MM to \$225 MM. The guidance for other line items including LOE, GPT, G&A, Interest and DD&A was unchanged.</p> <p>Macquarie wrote that the Company's US production was above its estimate as "[a]ll three streams contributed to the beat." However, the analyst commented that the Company's "2Q18 and FY18 US guidance sees limited follow through in future quarters as the guidance increase only includes the 1Q18 production beat." Macquarie cautioned that Apache's "2018 [was] likely to present additional headwinds as Permian takeaway capacity on both crude and natural gas become increasingly challenged":¹⁷⁰</p> <p>Event APA released its 1Q18 quarterly results. See Figure 1 below for key metrics.</p> <p>Impact</p>

¹⁷⁰ Macquarie Research, "Apache Corp., Strong 1Q18 but Limited Follow Through Begs the Question: Conservative or One-Time," May 2, 2018, 6:59 PM.

Exhibit 12

Impact Date	Event
	<p>Marginally Positive – Solid 1Q18 results are driven by US production but 2Q18 and FY18 US guidance sees limited follow through in future quarters as the guidance increase only includes the 1Q18 production beat. The key question for investors is this simply conservatism for the future or just one solid quarter?</p> <p>Raising US Production Guidance: Apache raised FY18 US production guidance to 250-258mboe/d from 245-255mboe/d which compares to our estimate of 248mboe/d. After adjusting for the strong 1Q18 production beat, there is essentially no change in cadence for future 2018 quarters. 2Q18 US production guidance of 248mboe/d is above our estimate of 239mboe/d but generally only reflects the higher 1Q18 production. FY18 US oil mix guidance is increased by 1%. International 2Q18 guidance of 135mboe/d is below our estimate of 140mboe/d while FY18 guidance of 130-140mboe/d is unchanged. 2Q18 capex guidance of US\$800mm is above our estimate of US\$760mm and consensus of US\$749mm and implies 55% of the US\$3.0b FY18 budget being spent in 1H18.</p> <p>US Drives 1Q18 Beat: US production of 232.5mboe/d beat our estimate of 223.5mboe/d and was above the company's guidance of ~223mboe/d. All three streams contributed to the beat; however, NG accounted for the majority of the beat vs our estimates. UKNS and adjusted Egypt production were both roughly in line with our estimates but Egypt's oil mix of 59.9% was above our estimate of 58.6%. Absolute expenses were generally higher than estimated but is partially driven by higher volumes. Crude pricing in the US and UKNS aided the beat while natural gas realizations in the US and Egypt slightly offset those.</p> <p>Action and recommendation Apache's solid 1Q18 execution does start the year off in the right direction. However, we see 2018 likely to present additional headwinds as Permian takeaway capacity on both crude and natural gas become increasingly challenged. Apache has room for improvement on operations which could be a key positive catalyst, the challenge remains improving that execution in an increasingly difficult operating environment. We reiterate our Underperform.</p>

Exhibit 12

Impact Date	Event
	<p>NatAlliance wrote that the Company’s reported CFPS was “above Consensus due to higher oil production and higher realized prices.” The analyst noted that the Company increased 2018 production guidance and “was likely to raise its 2019 and 2020 international production guidance in the future.” However, NatAlliance commented that Apache’s “growth is below peers and its Permian assets are gassier”:¹⁷¹</p> <p>We maintain a Hold Rating and a \$42 target on Apache Corp (APA, NYSE- \$38.50). Apache has reasonable assets and an ok balance sheet, but growth is below peers and its Permian assets are gassier.</p> <p>1Q18 Cash Flow Per Share Was \$0.18 Above Consensus. 1Q18 CFPS of \$2.06 was \$0.09 above Consensus due to higher oil production and higher realized prices. APA’s 1Q18 production of 440,336 Boepd was 1.1% above Consensus, and oil production of 241,365 Bopd was 2% above Consensus. 1Q18 CapEx of \$857 mm was 10% above Consensus of \$780 mm.</p> <p>APA Raised Its 2018 Production Guidance By 1% While CapEx Guidance Was Unchanged. APA raised its 2018 production guidance by 0.9% to a new range of 453-472,000 Boepd exclusively due to higher US production. APA also indicated that it was raising its US oil cut guidance to 40% from 39%. 2018 CapEx guidance was maintained at \$3.0 billion.</p> <p>APA Said It Was Likely To Increase Its 3 Year Production Outlook Based On A Recent North Sea Discovery. APA reaffirmed its three-year plan calling for APA to grow its US production volumes at a 19-22% CAGR between 2017 and 2020 with nearly all of the growth focused in the Permian Basin with a very outsized allocation to Alpine High. However, APA indicated that it was likely to raise its 2019 and 2020 international production guidance in the future as a result of its recent Garten oil discovery in the North Sea. APA expects to accomplish this plan with average CapEx of \$2.85 billion over the next three years. This outlook was based on \$55 WTI, and APA is now hinting that higher oil prices may get APA to spend more money on Permian oil.</p>

¹⁷¹ NatAlliance, “Apache Corporation, Raises 2018 Production Guidance By 1% & Plans To Increase 2019/2020 Guidance In 2H18,” May 3, 2018.

Exhibit 12

Impact Date	Event
	<p>Reported Permian Well Results Continued To Look Good. APA's latest Wolfcamp wells in the Midland Basin had 30-day average IP rates of 173 Boepd per 1,000' of lateral (75% oil), which were similar to last quarter. Included was APA's first operated Wolfcamp C test which had a peak 30-day rate of nearly 1,150 Boepd (70% oil). The Company also reported 9 new Delaware Basin wells with average 30-day IP rates of 1,783 Boepd (44% oil), which were 11% better than 12 wells in 4Q17 but with a lower oil cut. At Alpine High, APA announced 4 new wet gas wells with 1-mile laterals with 30-day average IP rates of 1,366 Boepd (14% oil), which were 16% better than 4Q17 wells but with a lower oil cut. 2 new dry gas wells at Alpine High also had 30-day average IP rates of 17 MMcfpd, which were much better than 4Q17 results.</p> <p>There Are Potential Catalysts Through Better Permian Wells Or A Midstream Monetization At Alpine High. It is still early days at Alpine High, and APA is likely to improve the asset through better wells, inventory derisking and lower costs. However, most of the acreage is in the wet gas window, and the returns aren't yet as proven as other parts of the Permian. APA also has some pretty solid acreage in the Midland Basin and the move to longer laterals should continue to improve returns. APA seems quite confident that a midstream monetization at Alpine High will happen in 2H18, which would be bullish and reduce CapEx.</p> <p>Balance Sheet Leverage Is In-Line With Peers. APA's leverage is in-line with 2018 Net Debt/EBITDA of around 1.5x. However, the company has excellent liquidity with cash of over \$1.0 bn and an undrawn \$2.1 bn revolver. We expect APA to slightly outspend cash flow in 2018 including the dividend, but we see APA flipping to a free cash flow positive position of around \$225 mm in 2019 at \$67 WTI. APA is a little lightly hedged, which exposes the company to potential commodity weakness.</p> <p>APA Trades At A Discounted Multiple Based On Lower Growth. Apache trades at a discounted multiple vs. peers with a 2018 TEV/DACF multiple of 5.8x at \$65/\$2.75 based on lower growth. This multiple also doesn't capture the full earnings power of Alpine High or its growing midstream business. APA also reflects \$57 WTI based on our NAV, which is a discount to</p>

Exhibit 12

Impact Date	Event
	<p>peers. Our \$42 target is based on a blended 6.0x multiple of 2018 DACF and our \$53 NAV estimate (based on \$65/\$3.00).</p> <p>RBC wrote that the Company's adjusted EPS was below its estimates and consensus "relate[d] to higher income tax partly offset by strong production and better price realizations," while CFPS was above RBC and consensus estimates, and production beat RBC's estimate and guidance. The analyst observed that Apache had "[p]ositive test results of company's first Wolfcamp C producer." RBC noted that the Company increased its 2018 U.S. production guidance while unchanged capex guidance "should address inflation concerns".¹⁷²</p> <p>Our View: We think APA shares trade higher on strong Permian production and the positive initial Wolfcamp C well result. Capital spending was above expectations but the full year outlook is unchanged which should address inflation concerns.</p> <p>1Q18 recurring EPS/CFPS of \$0.32/\$2.08 was above our \$0.38/\$1.88 and the \$0.33/\$1.99 consensus estimates. The EPS miss relates to higher income tax partly offset by strong production and better price realizations.</p> <p>1Q18 adjusted production for Egypt tax barrels and non-controlling interest of 367 Mboe/d (194 Mbbl/d oil) was above our 358 Mboe/d (189 Mbbl/d) model and the 358 Mboe/d guidance. The production beat was driven by stronger Permian and MidContinent/Gulf Coast production than our estimates. Capital spending of \$867 million was above our \$788 million estimates and guidance of \$800 million.</p> <p>Highlights Positive test results of company's first Wolfcamp C producer. Early-stage assessments suggest the possibility of several hundred Wolfcamp C locations.</p>

¹⁷² RBC Capital Markets, "APA - 1Q18 Strong Results Driven by Robust Permian Performance; Production Guide Increased," May 2, 2018, 6:55 PM.

Exhibit 12

Impact Date	Event
	<p>New completion design in the Midland drove strong early time well performance and better efficiencies.</p> <p>Placed online its first multi-well test in the wet gas window at Alpine High with strong initial results.</p> <p>Alpine High well costs down 20% over 2017 average well costs highlighting multi-well pad efficiencies.</p> <p>2018 Guidance Increased U.S production to 250-258 Mboe/d from 245-255 Mboe/d previously from strong well performance particularly in the Permian.</p> <p>Slight increase to oil composition.</p> <p>Unchanged capital spending guide at \$3 billion but is 1H18 weighted.</p> <p>Scotia wrote that the Company had “a fairly quiet” report with EPS and CFPS that “were directly in line with our estimates [and topped consensus], though domestic production exceeded our expectations.” The analyst commented that “[b]ased on strong 1Q18 volumes from the U.S., APA is increasing its 2018 production estimate very slightly while leaving the capital budget unchanged”:¹⁷³</p> <p>QUICK TAKE: Apache’s financial results were directly in line with our estimates, though domestic production exceeded our expectations by ~8,000 Boepd. Based on strong 1Q18 volumes from the U.S., APA is increasing its 2018 production estimate very slightly while leaving the capital budget unchanged. Further, the production mix projection has moved modestly, from 39% oil in the U.S. to 40% oil in the U.S.. International volume guidance is unchanged. Operationally, higher 30-day IP rates per 1,000 lateral feet were observed across the</p>

¹⁷³ Scotia Howard Weil, “Apache Corporation, 1Q18 Results: Domestic Production Accelerates on Permian Improvements,” May 3, 2018, 6:16 AM.

Exhibit 12

Impact Date	Event
	<p>board versus the 4Q17 operational update, an encouraging sign. In summary, a fairly quiet but overall positive report from APA.</p> <p>KEY POINTS EPS and CFPS Beat vs. Consensus: APA reported EPS and CFPS of \$0.32 and \$2.08, in line with our estimates to the penny, and above consensus at \$0.30 and \$2.01, respectively. U.S. production exceeded guidance by 9,000 Boepd and international volumes were at the guided range.</p> <p>Societe Generale wrote that the Company “had a clean quarter” as adjusted EPS was lower than its estimate, DCFPS was above its estimate, and both were “flat with [the] Street.” The analyst commented that “[g]iven widening sales price differentials for oil (Midland) and natural gas (Waha), we expect the Street to question APA about maximizing revenue during volatile times, especially given the Alpine High spending”.¹⁷⁴</p> <p>1Q18 Results: Adjusted EPS/DCFPS (discretionary cash flow per share after common stock dividends) of \$0.32/\$1.84 were down/up vs. SGE of \$0.33/\$1.62 and flat with Street of \$0.32/\$1.83. Reported 1Q18 EPS was \$0.38 and included \$0.06 of net charges, primarily related to unrealized derivative gains which were offset by some other adjustments. Adjusted BOE output of 366.9 MBOE/d was +1% sequentially; geographically 63% of output was domestic and by commodity 53% oil, 14% Ngl's and 33% natural gas. And US output rose 5%, some 4% above plan, and also represented 78% of 1Q18's cap-ex. Commodity realizations QOQ were much improved with oil +10%, Ngl+ 17% which offset lower 4% lower natural gas pricing – but even with the revenue boost, overall discretionary cash flow was flattish given a greater use of working capital. During the quarter, APA had net costs incurred of \$857MM (87% upstream and 13% midstream) vs. after dividend discretionary cash flow of \$703MM. During the quarter, APA retired \$150MM of notes which matured in February and ended the quarter with \$1.1 billion in cash (\$2.86/share in cash or 7% of stock value) and LTD/Book Capitalization of 51%. APA boosted their 2018 production growth target to 11% from 10%, but didn't increase their</p>

¹⁷⁴ Societe Generale, “Apache Corp, 1Q ops reflective of measured pace; emphasis on Permian shales and int'l unconventional,” May 3, 2018, 12:26 AM.

Exhibit 12

Impact Date	Event
	<p>cap-ex budget, reflecting better wellhead realizations, production performance and E&D program management. At the end of 1Q18 open commodity derivative positions looked to us to be unchanged from 4Q17.</p> <p>Operations: Globally, APA ran 34 rigs in 1Q18 and D&C'ed 80 net wells (70% US). In the Permian, they had 15 rigs running (5 Midland and 10 Delaware) with 2 frac crews in the Midland and 1.5 in the Delaware. We consider the Azalea 30 day IP to be encouraging and note that well costs continue to come down at the Alpine High. We hope that other E&Ps follow APA's lead by addressing production per 1,000' lateral foot, which across their play types seemed to us to be peer competitive. Internationally, the Garten discovery adds 10 MMBOE with a \$60MM drilling and tie-back cost and drilling activity in Egypt continued to show that APA could deliver conventional growth as they always have with an 86% drilling completion success rate. 2Q adjusted production is targeted to be 383 MBOE/d, + 4% primarily because of US operations.</p> <p>SG View: From our vantage point, APA had a clean quarter. Given widening sales price differentials for oil (Midland) and natural gas (Waha), we expect the Street to question APA about maximizing revenue during volatile times, especially given the Alpine High spending. But, we still consider the plan viable. We believe that APA will continue to demonstrate that they can deliver greater E&D program efficiencies and with more systematic field development, we think the Street will realize that APA, too, has an interesting Permian position which can be optimized. We hope that they address Chinook in greater detail in The Alpine High, and why they think their 'measured pace' of activity will prove differential.</p> <p>UBS wrote that "APA reported 1Q18 results modestly topping expectations" with adjusted EPS and EBITDAX above the analyst's estimate and consensus "driven by production, with US onshore outperforming guidance, and strong crude pricing." The analyst noted that the Company "raised FY18 US guidance by 4mboepd and increased its oil mix to 40% (from 39%)".¹⁷⁵</p>

¹⁷⁵ UBS, "Apache Corporation, Modest Beat, US Onshore Outperforms," May 2, 2018.

Exhibit 12

Impact Date	Event
	<p>1Q18 Results APA reported 1Q18 results modestly topping expectations with adjusted EPS / EBITDAX coming in at \$0.32 / \$1,087mn vs consensus of \$0.30 / \$983.7mn and UBSe of \$0.28 / \$1,071mn. The beat was driven by production, with US onshore outperforming guidance, and strong crude pricing. This was partially offset by lower NGL and natural gas realizations and a higher than anticipated current tax (tied to North Sea). Per unit costs were largely in line.</p> <p>Highlights... Highlights included; (1) APA raised FY18 US guidance by 4mboepd and increased its oil mix to 40% (from 39%). International guidance was unchanged. (2) 1Q18 US onshore production came in ~9mboepd above guidance at 232mboepd (see below) (3) APA highlighted its 1st Wolfcamp C test, with a IP30 peak rate of 1,150boepd. (4) APA tested the first multiwall pad in the wet gas window play of Alpine High (four-well Chinook avg IP30 of 1,366boepd, ~14% oil). (5) APA lowered Alpine well costs by ~20% compared to 2017, tied to pad development and new well designs. (6) 1H18 capex is expected to total \$1.66bn of the FY18 \$3.0bn program (unchanged). Alpine High spending has tailed off into YE previously.</p> <p>US Onshore Outperforms 1Q18 exceeded guidance by ~9 mboe/d. The beat was driven ~50% in Permian oil, with the next largest contributor SCOOP production. Enhanced completion designs, shorter cycle times and moving to pads (specifically in the Midland) all contributed. The Gulf/SCOOP production is forecasted to fall over the course of 2018, while Midland continues to inflect higher.</p> <p>Valuation: Focus Questions Management will host a conference call tomorrow at 11AM ET. Likely focus on (1) Midstream solution / update on the process / structure being considered. (2) Alpine High well results / cost improvements, (3) Wolfcamp C well and potential inventory read-through. Our \$34 target price is 4.0x our two year forward normalized CFPS of \$8.52/share.</p> <p>Wolfe wrote that the Company's cash flow was below its estimate but in-line with consensus. The analyst remarked that Apache's "1Q production beat and slight uptick to the FY18 oil mix were positive alongside the \$3Bn capex budget being reiterated." Wolfe's "concern remains the mix shift towards domestic natural gas over time as Alpine</p>

Exhibit 12

Impact Date	Event
	<p>High is ramping into a declining price environment and we're still waiting for the details around the midstream plans".¹⁷⁶</p> <p>Good Quarter But Concerns On L-T Mix Remain. The 1Q production beat and slight uptick to the FY18 oil mix were positive alongside the \$3Bn capex budget being reiterated. However, our concern remains the mix shift towards domestic natural gas over time as Alpine High is ramping into a declining price environment and we're still waiting for the details around the midstream plans that's embedded in the multi-year growth outlook. Underperform.</p> <p>Results. 1Q CFO at \$797Mn was a little below WR \$838Mn but in line with street. US production at 232kboed beat the midpoint of guidance by 9kboed, though the 2Q guide at 248kboed is in line with WR forecast. \$3.0Bn budget for 2018 maintained.</p> <p>2018 Production Bump. We thought it was interesting that APA raised the midpoint of full-year US production by ~4kboed, but also ticked up the expected oil mix by 1% to 40% for the year. We wonder whether capital is being shifted towards the Midland Basin vs. the Alpine High and look for additional detail on the conference call tomorrow.</p> <p>Alpine High upstream update. APA announced it brought online its first multi-well test in the wet gas window of the play, the four-well Chinook pad, which delivered ~1.4kboed average 30-day rates. We thought these results were a little light, albeit they are on shorter-laterals and two-stream. APA also spoke to having made major progress on cost reductions this quarter, with well costs down 20% over average 2017 well costs.</p> <p>Midstream Update. APA may be close to an agreement with a third-party to monetize a portion of its Alpine midstream investment though there was no update in today's release, nor was there much commentary about adding takeaway capacity for gas volumes out of the basin. They may be mitigating some exposure to WAHA, where Summer 2019 pricing is <\$1.10/mmbtu, but not all. Expect an update around monetization and marketing on the call.</p>

¹⁷⁶ Wolfe Research, "Apache Corp., No Jokes This Quarter, But Midstream Questions Linger," May 2, 2018.

Exhibit 12

Impact Date	Event
	<p>Following the Company's disclosures on May 2, 2018, according to Bloomberg, the average of analysts' price targets for Apache stock increased to \$46.51 from \$46.32, or 0.40%. All 31 analysts who published investment ratings for the Company both before and after the earnings announcement maintained their ratings. (<i>See</i> Exhibit 5C.)</p> <p>Remark: Given that: (i) "APA reported 1Q18 results modestly topping expectations";¹⁷⁷ (ii) analysts "believe[d] investor[s'] negative view on natural gas prices will overshadow a solid 1Q18";¹⁷⁸ and (iii) analysts were concerned that the Company's "2Q18 and FY18 US guidance sees limited follow through in future quarters as the guidance increase only includes the 1Q18 production beat,"¹⁷⁹ the statistically significant Company-specific stock price decline on May 3, 2018 is consistent with that expected in an efficient market.</p>
8/2/2018	<p>After market close on Wednesday, August 1, 2018, the Company announced its second-quarter 2018 financial results. For the quarter, Apache reported production of 464 mboe/d, revenue of \$1.94 billion, EPS of \$0.51, and adjusted EPS of \$0.50.¹⁸⁰</p>

¹⁷⁷ UBS, "Apache Corporation, Modest Beat, US Onshore Outperforms," May 2, 2018. *See also, e.g.*, Bank of America Merrill Lynch, "Apache Corp, 1Q18 Earnings recap: solid quarter, higher guidance, but outlook still gas dominant," May 3, 2018, 7:20 AM; Deutsche Bank, "Apache Corp., APA 1Q18 - Back in Black (Oil)," May 3, 2018, 1:09 AM; Jefferies, "Apache, 1Q18 Beat, US Production Guidance Raised," May 2, 2018, 7:35 PM.

¹⁷⁸ Cowen and Company, "Apache Corporation, 1Q18 Earnings at a Glance," May 2, 2018. *See also, e.g.*, Bank of America Merrill Lynch, "Apache Corp, 1Q18 Earnings recap: solid quarter, higher guidance, but outlook still gas dominant," May 3, 2018, 7:20 AM; NatAlliance, "Apache Corporation, Raises 2018 Production Guidance By 1% & Plans To Increase 2019/2020 Guidance In 2H18," May 3, 2018; Wolfe Research, "Apache Corp., No Jokes This Quarter, But Midstream Questions Linger," May 2, 2018.

¹⁷⁹ Macquarie Research, "Apache Corp., Strong 1Q18 but Limited Follow Through Begs the Question: Conservative or One-Time," May 2, 2018, 6:59 PM. *See also, e.g.*, Deutsche Bank, "Apache Corp., APA 1Q18 - Back in Black (Oil)," May 3, 2018, 1:09 AM.

¹⁸⁰ Apache News Release, "Apache Corporation Announces Second-Quarter 2018 Financial and Operational Results," August 1, 2018. *See also GlobeNewswire*, "Apache Corporation Announces Second-Quarter Financial and Operational Results," August 1, 2018, 7:17 PM.

Exhibit 12

Impact Date	Event																																				
	<p>The consensus estimates of the Company’s revenue and adjusted EPS were \$1.77 billion and \$0.39, respectively.¹⁸¹</p> <p>John J. Christmann IV, Apache’s chief executive officer and president, commented on the Company’s results:¹⁸²</p> <p>Apache’s operational and strategic delivery have been exceptional through the first half of 2018. We are proactively managing our costs, operating at an activity level that maximizes capital efficiency, and we have established considerable momentum that is now showing up in our results In the United States, the Permian Basin was our primary growth driver, with oil production in the Midland and Delaware basins up 20,000 barrels per day year-over-year and 6,000 barrels per day over the first quarter.</p> <p>The Company also updated its fiscal year 2018 guidance and provided third quarter 2018 guidance, as follows:¹⁸³</p> <table><tr><th colspan="3">FY 2018 Guidance</th></tr><tr><th>Daily Production (mboe/d)</th><th>Previous</th><th>Updated</th></tr><tr><td>United States</td><td>250 - 258</td><td>260</td></tr><tr><td>International</td><td>203 - 214</td><td>208</td></tr><tr><td> Reported Production</td><td>453 - 472</td><td>468</td></tr><tr><td> Less: Egypt Tax Barrels</td><td>33 - 34</td><td>34</td></tr><tr><td> Less: Egypt Noncontrolling Interest</td><td>40</td><td>40</td></tr><tr><td> Total Adjusted Production</td><td>380 - 398</td><td>394</td></tr><tr><th colspan="3">Capital Guidance (millions)</th></tr><tr><td>United States</td><td>\$2,300</td><td>\$2,700</td></tr><tr><td>International</td><td>\$700</td><td>\$700</td></tr><tr><td> Total</td><td>\$3,000</td><td>\$3,400</td></tr></table>	FY 2018 Guidance			Daily Production (mboe/d)	Previous	Updated	United States	250 - 258	260	International	203 - 214	208	Reported Production	453 - 472	468	Less: Egypt Tax Barrels	33 - 34	34	Less: Egypt Noncontrolling Interest	40	40	Total Adjusted Production	380 - 398	394	Capital Guidance (millions)			United States	\$2,300	\$2,700	International	\$700	\$700	Total	\$3,000	\$3,400
FY 2018 Guidance																																					
Daily Production (mboe/d)	Previous	Updated																																			
United States	250 - 258	260																																			
International	203 - 214	208																																			
Reported Production	453 - 472	468																																			
Less: Egypt Tax Barrels	33 - 34	34																																			
Less: Egypt Noncontrolling Interest	40	40																																			
Total Adjusted Production	380 - 398	394																																			
Capital Guidance (millions)																																					
United States	\$2,300	\$2,700																																			
International	\$700	\$700																																			
Total	\$3,000	\$3,400																																			

¹⁸¹ *TheFlyontheWall.com*, "19:24 EDT Apache reports Q2 adjusted EPS 50c, consensus 39cReports Q2 revenue....," August 1, 2018.

¹⁸² Apache News Release, "Apache Corporation Announces Second-Quarter 2018 Financial and Operational Results," August 1, 2018.

¹⁸³ Apache News Release, "Apache, Second-Quarter 2018, Financial and Operational Supplement," August 1, 2018.

Exhibit 12

Impact Date	Event																		
	<table> <tr> <th><u>Quarterly Guidance</u></th><th><u>3Q 2018 Guidance</u></th></tr> <tr> <td>Production (mboe/d)</td><td></td></tr> <tr> <td>United States</td><td>270</td></tr> <tr> <td>International (Adjusted)</td><td><u>128</u></td></tr> <tr> <td>Total Adjusted Production</td><td>398</td></tr> <tr> <td>Capex (millions)</td><td>\$875</td></tr> <tr> <td>Cash Exploration Costs (millions)</td><td>\$60</td></tr> <tr> <td>General and Administrative Expenses (millions)</td><td>\$110</td></tr> <tr> <td>Financing Costs (millions)</td><td>\$95</td></tr> </table> <p>Christmann commented on the Company's guidance:¹⁸⁴</p> <p>Apache is executing extremely well on all fronts. We are realizing capital efficiency and productivity improvements that are increasingly evident in our financial and operational results. In the Permian Basin, our drilling and completion operations are very efficient, and our wells are outperforming. Our primary infrastructure is in place at Alpine High, and we are in the very early stages of a significant, long-term production ramp up. Furthermore, we have progressed an Alpine High midstream transaction to advanced stages and anticipate closing before year-end.</p> <p>Internationally, we are generating significant free cash flow bolstered by Brent oil pricing. Our strategy and investment decisions in these regions are designed to deliver long-term oil growth in Egypt and to sustain production volumes in the North Sea. Our recent discoveries at Callater and Garten in the North Sea and our large-scale, high-density seismic and new acreage concessions in Egypt, give us confidence in our ability to deliver on this strategy while simultaneously maintaining or growing free cash flow.</p>	<u>Quarterly Guidance</u>	<u>3Q 2018 Guidance</u>	Production (mboe/d)		United States	270	International (Adjusted)	<u>128</u>	Total Adjusted Production	398	Capex (millions)	\$875	Cash Exploration Costs (millions)	\$60	General and Administrative Expenses (millions)	\$110	Financing Costs (millions)	\$95
<u>Quarterly Guidance</u>	<u>3Q 2018 Guidance</u>																		
Production (mboe/d)																			
United States	270																		
International (Adjusted)	<u>128</u>																		
Total Adjusted Production	398																		
Capex (millions)	\$875																		
Cash Exploration Costs (millions)	\$60																		
General and Administrative Expenses (millions)	\$110																		
Financing Costs (millions)	\$95																		

¹⁸⁴ Apache News Release, "Apache Corporation Announces Second-Quarter 2018 Financial and Operational Results," August 1, 2018.

Exhibit 12

Impact Date	Event
	<p>Given our strong well performance trends, capital efficiency improvements, and the planned increase in 2018 investment, we anticipate upside bias to our 2019 and 2020 production guidance, which we will revisit later this year</p> <p>The Company held a conference call with investment analysts the following morning. Christmann commented on the Company’s potential midstream monetization:¹⁸⁵</p> <p>... I know that many of you are curious about the status of our midstream business. We have been engaged in a very thoughtful and deliberate process with regard to creating and realizing value for our Alpine High midstream assets. As you have seen in our recent announcements, we have secured equity options in 5 transportation projects that will move oil, gas and NGL to the Gulf Coast from the Permian Basin. These options are very strategic for Alpine High, Apache and the Delaware Basin in general. We have worked the timing of these options to coincide with consummation of a larger midstream transaction to leverage their fully integrated value potential. We are in the advanced stages of a transaction that we anticipate will close before year-end. And we’ll come back to you with more details on this as soon as practical.</p> <p>Bank of America Merrill Lynch wrote that the Company’s adjusted EPS and EBITDA beat its estimate and consensus “on lower costs and strong production offset by lower gas realizations primarily in the Permian Basin.” However, the analyst cautioned that “[v]ersus our estimate, the beat was differences in the calculation of derivative gains, which does not carry to subsequent quarters.” The analyst observed that the Company increased its production guidance, and “[c]ritically, this is accompanied by higher capex”:¹⁸⁶</p> <p>EPS beats on NGL realizations and production</p>

¹⁸⁵ Thomson Reuters, *StreetEvents*, “APA – Q2 2018 Apache Corp Earnings Call, EVENT DATE/TIME: AUGUST 2, 2018 / 3:00PM GMT,” August 2, 2018, 11:00 AM.

¹⁸⁶ Bank of America Merrill Lynch, “Apache Corp, 2Q18 Earnings recap: EPS beats, lower costs and derivative gains; capex up 13%,” August 2, 2018, 1:43 AM.

Exhibit 12

Impact Date	Event
	<p>APA's adj. EPS/EBITDA of \$0.51/\$1.3bn beat consensus of \$0.40/\$1.12bn (BofAMLe \$0.30/\$1.2bn) on lower costs and strong production offset by lower gas realizations primarily in the Permian Basin. Versus our estimate, the beat was differences in the calculation of derivative gains, which does not carry to subsequent quarters. Cashflow at \$932mm ex working capital was in line. Adj. production of 390mboepd topped guidance of 383mboepd on strong US output which at 255.5mboepd beat 248mboepd guidance, but mainly gas in the Alpine high. FY18 total output was guided higher to a new target of 394mboepd (from 380-398mboepd) again driven by the Permian. Critically, this is accompanied by higher capex, a trend seen for numerous operators. APA raised FY capex by 13% to \$3.4bn mainly on additional frac crews added in the Midland Basin, longer laterals/larger fracs in the Alpine High and others. Look for color on the call.</p> <p>Midstream monetization progressing</p> <p>Alpine high production is accelerating with end July exit >54mboepd, from 32mboepd in 2Q19. Total Permian output now stands at 202mboepd (from 146mboepd in 2Q17) with oil accounting for 32% of the yoy increase, gas 50%, and the balance NGLs. Realized gas prices fell to 66% of HH vs 80% in the year ago quarter underlining the challenge of APA's gas led growth, until cryo plants start up in 2019. Operating performance was strong with average well costs falling again (to \$5.4mm vs \$6.2mm target) & successful spacing tests (Dogwood) showing limited interference for the 660ft wells in the dry gas window. A key question for the call is whether the 500 location count in the oil window has upside. Critically, management suggests midstream monetization has advanced with a transaction to likely sell a minority interest expected before the end of the year.</p> <p>Gas levered growth still dominates our relative view</p> <p>Outside the Alpine High, cash margins in both Egypt and the North Sea have improved qoq driven by higher realizations, offset by higher operating costs in the North Sea. Overall another solid quarter for APA – but with the persistent challenge that is a portfolio shifting towards US natural gas, that by our analysis dilutes cashflow growth per debt adjusted share. We adjust our estimates for 2Q18 results and updated guidance. Versus oil levered names, our rating is Underperform.</p>

Exhibit 12

Impact Date	Event
	<p>BMO wrote that the Company reported EPS in line with BMO’s estimate but above consensus, production was above both BMO and consensus forecasts, and cash flow beat the analyst’s estimate. The analyst noted that the Company’s third quarter production guidance was “in line with our estimates, while Apache’s 2018 production and capex outlook was increased.” BMO commented that the Company’s increased capex guidance “outweighs higher 2018 volumes and positive 2019-20 commentary of production trending to the high end”.¹⁸⁷</p> <p>Bottom Line: Apache reported better 2Q production, but oil was in line with our model, with capex higher. Production guidance for 3Q was also in line with our estimates, while Apache’s 2018 production and capex outlook was increased. The capex raise was well telegraphed (1Q came in hot), but we think outweighs higher 2018 volumes and positive 2019-20 commentary of production trending to the high end. Alpine High midstream monetization is in advanced stages with year-end close targeted.</p> <p>Key Points</p> <p>2Q Production Better, But Oil In Line and Capex Higher. Apache reported 2Q18 EPS of \$0.50, in line with our \$0.50, but above consensus of \$0.40. Consolidated EBITDAX of \$1,268mm was above our/consensus \$1,219mm/1,126mm, while DCF of \$932mm also beat our \$887mm. Production of 464MBoe/d was above our/consensus 459/457MBoe/ d, with Mid-Con/Gulf (+5MBoe/d) and Permian (+2) beating, and Egypt lower (-2). Oil of 247MBbl/d matched our estimate (Permian in line), but beat consensus of 244MBbl/d. Alpine High grew to 32MBoe/d (vs. our 31MBoe/d) from 26MBoe/d in 1Q, while Apache is in advanced stages on a midstream transaction (YE close). Capex of \$922mm was above our \$845mm, while consensus was \$789mm.</p> <p>3Q Guidance In Line... Apache’s 3Q adjusted production guidance of 398MBoe/ d is below our 401MBoe/d, although driven by North Sea maintenance (-9), while U.S. (+6) and Permian (+3) were better. Alpine High should grow to 50MBoe/d in 3Q, which is shy of our 52MBoe/d, while 2018 guidance was tightened to 45MBoe/ d (vs. 40-50MBoe/d). Alpine should ramp in 2H18</p>

¹⁸⁷ BMO Capital Markets, “Apache, 2Q Vols Better With Outlook Raised, But Capex Also Moves Higher,” August 1, 2018, 10:40 PM.

Exhibit 12

Impact Date	Event
	<p>with 70% of 2018 TILs scheduled for June-Dec, resulting in 2019 volumes trending towards the high end of guidance (85-100MBoe/d), while D&C progress continues and newly-disclosed 2019 gas/oil inbasin price exposure shows a modest increase vs. 2018.</p> <p>...While 2018 Vols and Capex Raised. Full-year production was raised by 1.3% (proforma), driven by 2.4%/5.0% improvements to U.S./Permian, offset by 0.7% lower International, but on higher capex. Apache expects to maintain spending levels (\$1.7B in 1H) into 2H, resulting in 2018's budget increasing to \$3.4B from \$3.0B. The addition of two Midland rigs, longer laterals and upsized completions in Alpine, and Permian infrastructure drove the increase, which is all U.S. Operating cost guidance was unchanged, while Apache notes an upward bias to 2019-20 production guidance given increased investment and well performance trends.</p> <p>Cowen wrote that the Company's quarter was "[s]lightly [p]ositive" as "2Q18 total production, earnings, and cash flow beat estimates." The analyst expected that the Company's "2018 production guidance raise as well as increased capex will likely be view[ed] favorably," but "wonder[ed] if investors will begin to question if capital discipline would have been maintained if takeaway wasn't limited".¹⁸⁸</p> <p>Slightly Positive. Solid 2Q18 beat with 2018 production guidance and capex raise. Investors will be focused on midstream monetization which is in advanced stages and likely to occur by year-end 2018. We still believe investors would prefer oil growth to Alpine High.</p> <p>Stock Thoughts 2Q18 total production, earnings, and cash flow beat estimates. 2018 production guidance raise as well as increased capex will likely be view <i>[sic]</i> favorably. We do wonder if investors will begin to question if capital discipline would have been maintained if takeaway wasn't limited. APA indicated that their spending should match cash flow in 2019 which is earlier than most investors expectations. Alpine High's development appears ahead of schedule, positive tests have encouraged the company to drill longer and perform larger completions, and midstream monetization appears likely by year-end.</p>

¹⁸⁸ Cowen and Company, "Apache Corporation, 2Q18 Earnings at a Glance," August 1, 2018.

Exhibit 12

Impact Date	Event
	<p>What to Expect on the Call</p> <p>Production Guidance: FY2018 guidance was increased by approximately 5 Mboe/d, at the midpoint. Compared to our latest FY2018 estimates, U.S. production guidance is 1% higher, total Permian 0.4% lower, Alpine High 10% higher, and International 0.8% higher. Total adjusted production guidance was 395 Mboe/d vs. our estimate of 392 Mboe/d, or 0.8% higher. Compared to consensus, the increase appears larger; on an unadjusted basis, we were ~0.6% higher. In our view, Alpine High may be ramping up faster than expected and we expect discussions on well timing through the end of the year.</p> <p>Capex Guidance Increase: Management increased the 2018 capital budget by \$400mm, now \$3.4B. Both we and the street estimated \$3.0B, same as prior guidance. The company plans to add 2 additional rigs (in order to optimize rig-frac crew ratio in the Midland), drill longer and complete more intense wells in Alpine High, pull forward planned Permian infrastructure to handle higher expected production, increase working interest in the North Sea, and other exploration. We expect questions weighting the decision to increase capital spend vs. returning capital to shareholders.</p> <p>Well Costs and Design Changes: APA mentioned several well designs it's implementing or planning to in the Permian basin. In the Midland, the company made significant completion design changes which resulted in lower cycle times and cost reductions of nearly \$400k/avg. completion. In Alpine High, costs have been down by 25% year to date and the company plans on longer laterals and larger stimulations after tests. We expect more details on the call regarding the changes made in Midland well design and the lengths and intensities planned in Alpine High.</p> <p>Alpine High Monetization Progress: The company anticipates closing a deal before year-end for it's Alpine High midstream assets; they indicate they have progressed to "advanced stages" of discussions.</p> <p>Credit Suisse wrote that the Company's "2Q EPS, EBITDX, and production beat" consensus and the analyst's estimate "driven by lower than expected costs and hedging loss." The analyst commented that the Company's third</p>

Exhibit 12

Impact Date	Event
	<p>quarter production guidance was “largely in line with CSe/consensus,” and 2018 production guidance was “slightly raised.” Credit Suisse “raised our 2018E CFPS by ~5%”:¹⁸⁹</p> <p>Raises 2018 capex by ~13% to \$3.4 billion; bumps volume guidance +5 MBoed. APA is increasing 2018 capex from \$3bn to \$3.4bn with nearly all of the incremental spend going to the Permian. The higher capex should result in roughly the same FCF deficit of ~\$50MM budgeted at the beginning of the year given the ~\$10/Bbl rise in WTI relative to the \$58/Bbl in the original budget. Meanwhile, APA slightly raised “reported” companywide volume guidance to ~468 (+5 MBoed vs. the prior outlook) on higher ex-Alpine Permian volumes (+10 MBoed), partly offset by lower other US production.</p> <p>2Q EPS, EBITDX, and production beat. Clean EPS of \$0.50 beat consensus/CSe of \$0.40. EBITDX rose ~16% QoQ to \$1.28bn, exceeding CSe by ~7% and consensus by ~14%. Relative to CSe, the beat was driven by lower than expected costs and hedging loss. Production of ~464 MBoed exceeded guidance of 459 MBoed & CSe/consensus of ~459/457 MBoed on higher liquids. Realized prices of \$45.51/Boe were in line with CSe. Unit costs were ~1% below CSe (~3% below excluding exploration expense).</p> <p>Other takeaways from 2Q updates: 1) 3Q18 “reported” volume guidance of 472 MBoed is largely in line with CSe/consensus, with North Sea maintenance impact offset by robust Permian growth; 2) plans to complete 66 wells during Jun-Dec vs. 26 during Jan-May in the Alpine High, enabling prod’n to reach 54 MBoed by end of July, although FY guidance remains 45 MBoed; 3) recent Alpine High well costs (lateral-adjusted) are tracking ~9% below APA’s 2018 target of ~\$6MM for a mid-lateral horizontal well; & 4) we raised our 2018E CFPS by ~5% & made minor changes to 2019-20E CFPS.</p> <p>Fully valued vs. peers. \$46 TP is based on ~6.4x normalized 2019E DACF & implies ~0.70x NAV. Risks: Permian gas diffs, Alpine High execution</p>

¹⁸⁹ Credit Suisse, “Apache Corporation, Raises Capex & Production But FCF Profile Weakens,” August 2, 2018.

Exhibit 12

Impact Date	Event
	<p>Evercore wrote that the Company’s second quarter production was “slightly above our/street estimates” and that “adjusted CFPS ... was ~3% above” the analyst’s estimate. Evercore noted that the Company’s guidance for 2018 “[c]apex and production [were] both raised”.¹⁹⁰</p> <p>Alpine update eye of the beholder, APA legging into the environment raising US onshore guide and capex budget.</p> <p>APA is executing a diversified strategy in 3 very distinct spheres. The US onshore (Permian) where a long process of moving legacy assets into development mode is bearing fruit (Permian driving US volume guidance raise). Internationally where the name of the game looks to be Brent value capture and extending plateau in legacy regions via incremental investment (with some deepwater exploration optionality for fun). Finally, at Alpine High where market skepticism remains high while APA has delivered on initial volume growth guidance (re-iterated 2019 towards the high end) and infrastructure build out has preceded the long awaited move to development. We have no issue with any of these strategies in isolation, but continue to struggle with a clear view of the value proposition at Alpine. Accepting a very low cost of entry and extremely low unit development costs (accompanying low margins) the challenge for us is underwriting a robust development plan and sustainable / repeatable returns. The long anticipated midstream transaction at Alpine High (expected in 2H18) will provide an important guidepost on volumes and unit economics (we hope), and perhaps a release of capital significant enough to make a difference. Pending this clarity we maintain our In Line rating post 2Q results.</p> <p>2Q18 Results. APA reported total 2Q18 production of 464 mboe/d (incl. NCI), slightly above our/street estimates of 459/449 mboe/d. Total US production of 255 mboe/d was above our 248 mboe/d estimate (US oil at 105 mbpd vs our 101), while international volumes were ~inline. O&G revenues were slightly ahead of our expectations while costs overall came in slightly below our estimates. Thus, adjusted CFPS of \$2.98 was ~3% above our \$2.88/shr (adjusted). Consolidated O&G capex of \$1.0 Bn exceeded our \$857mm estimate.</p>

¹⁹⁰ Evercore ISI, “Apache, 2Q Results Review,” August 2, 2018, 9:24 PM.

Exhibit 12

Impact Date	Event
	<p>What to look for on the call?</p> <p>1) Capex and production both raised. APA once again upped the 2018 US production guide (to 260 mboed, from 254 mboed previously), based on strong execution and well performance in 2Q. Cost items were maintained, however APA also raised the FY18 budget by \$400mm at midpoint to a total of \$3.4 Bn (with US capital spend moving from \$2.3 Bn to \$2.7 Bn). Key drivers outlined by APA include 2 additional rigs in the Midland basin (completion efficiencies), accelerated midstream investment, higher WI / upsized topside facility in the N Sea, and longer lead items in Suriname.</p> <p>2) Confidence in a midstream deal by YE18. Efforts toward a midstream monetization have moved to the ‘advanced stages’ with a deal still expected by YE18, with ‘primary infrastructure’ now in place. While specifics surrounding favored / likely deal structure or partners etc would surprise us tomorrow, we would look for any indications on timeline of an announcement. Interesting to us, APA pulled forward infrastructure spend with increased 2018 capex, but also noted that the updated budget reflects a full year of midstream spend (subject to change with a potential transaction). Recall, a key objective associated with APA’s planned midstream monetization has been to plug forward midstream outspend.</p> <p>Jefferies wrote that “APA posted a strong operational 2Q, beating on both production and costs,” resulting in adjusted EPS and EBITDA that were ahead of the analyst’s estimates and consensus. “However,” the analyst commented that the Company’s “US capex was raised by \$400 MM (+17%), while production guidance increased by only 6 mboe/d (+2%)”:¹⁹¹</p> <p>Neutral. APA posted a strong operational 2Q, beating on both production and costs. However, US capex was raised by \$400 MM (+17%), while production guidance increased by only 6 mboe/d (+2%). Details on the capex raise were light, and we will look for more color on tomorrow’s call.</p>

¹⁹¹ Jefferies, “Apache, 2Q18 Beat; Strong 2Q, But US Capex Raised by \$400 MM,” August 1, 2018, 9:00 PM.

Exhibit 12

Impact Date	Event
	<p>APA Reports an EPS Beat. APA reported adjusted EPS of \$0.50, ahead of JEF estimates of \$0.33 and consensus at \$0.40. Production of 464 mboe/d was ahead of both consensus at 457 mboe/d and JEF at 456 mboe/d. Oil volumes totaled 247.5 mb/d, which was also ahead of our 246 mb/d estimate and consensus at 244 mb/d. US production of 255.5 mboe/d came in 3% ahead of APA's guidance of 248 mboe/d. The EPS beat vs. our estimate was driven by higher production, higher pricing, and lower operating costs. Adjusted EBITDA of \$1,268 MM came in ahead of our \$1,111 MM and consensus of \$1,126 MM.</p> <p>Updated 2018 Guidance. APA raised FY18 US production guidance to 260 mboe/d (from 250-258 mboe/d), while Alpine High is expected to be at the midpoint of the prior range at 45 mboe/d. Adjusted net international production is now guided to 134 mboe/d (from 130-140 mboe/d) as higher Brent oil pricing increases the tax impact on Egypt volumes. The company is also raising FY18 US capital expenditures to \$2.7Bn (from \$2.3Bn), as APA will run two additional rigs in the Midland Basin and expects to drill longer laterals and utilize larger completions in Alpine High.</p> <p>Midland Basin Ops. In 2Q18, APA placed 22 wells online in the Midland Basin with a focus on pad development in the Wolfcamp and Spraberry formations. APA made changes to its completion designs to enable more efficient and optimized full-field development, resulting in lower cycle times and cost reductions of ~\$400k for the average completion. APA averaged five rigs and two frac crews during 2Q18.</p> <p>Delaware Basin/Alpine High Ops. APA placed 41 wells online in the Delaware Basin, mostly in late 2Q18. At Alpine High, production averaged 32 mboe/d, a 23% increase sequentially. Well costs in the play continue to fall, with average costs per treated lateral foot down by 25% YTD. APA averaged 12 rigs (nine dedicated to Alpine High) and 2.5 frac crews during 2Q18. APA will look to raise its investment in longer laterals and larger stimulations.</p> <p>International Ops. In Egypt, APA drilled its first wells on the new concessions acquired in 2017 and added a third new concession area of 650k gross acres in the East Bahariy region, bringing APA's total Egypt position to more than 6 MM acres. APA also completed surveys covering 1</p>

Exhibit 12

Impact Date	Event
	<p>MM acres of a planned 2.6 MM acre 3D seismic shoot across four basins in the Western Desert. In the North Sea, APA averaged production of 54.5 Mboe/d, which was flat vs 1Q18. APA expects to increase its North Sea production profile in late 2018 and early 2019 through two high-rate wells at Callater and Garten.</p> <p>Key Points for the Call. Additional detail on the capex raise n Update on Alpine High</p> <p>Details on flow assurance for Permian volumes going forward. APA's Permian is exposed to local pricing on 69% of oil and 59% of gas</p> <p>Expectations for Permian gas pricing (2Q came in at \$1.85/Mcf vs 1Q at \$2.40/Mcf</p> <p>JP Morgan wrote that “[d]espite strong upside 2Q18 financials that featured a 12% EBITDAX beat, 1% higher oil volumes, and a full-year production guidance bump, we expect a negative reaction to the print as management raised full-year capex by \$400 MM or 13.3%.” The analyst noted that Apache’s “2019 Alpine High guide [was] in-line with our expectations”.¹⁹²</p> <p>JPM View: Stock Reaction—Negative. Despite strong upside 2Q18 financials that featured a 12% EBITDAX beat, 1% higher oil volumes, and a full-year production guidance bump, we expect a negative reaction to the print as management raised full-year capex by \$400 MM or 13.3%. The market’s negative reaction to APC’s capex raise suggests limited market appetite to digest meaningful capex increases, although APA is clearly a lower expectation story than APC. Closely watched Alpine High volumes of 32 MBoe/d trailed our 34 MBoe/d estimate, but production has now climbed to 54 MBoe/d. APA now forecasts 2018 Alpine High production at the mid-point of their previous 40 to 50 MBoe/d guidance range, with the 2019 Alpine High guide in-line with our expectations. We expect the focus of Thursday’s call to be on the</p>

¹⁹² JP Morgan, “Apache Corp, 2Q18 Flash: Strong 2Q18 Results Overshadowed by Magnitude of Capex Increase; Stock Reaction-Negative - ALERT,” August 1, 2018, 11:32 PM.

Exhibit 12

Impact Date	Event
	<p>prospects for a midstream monetization of its Alpine High midstream assets near-term and the potential use of proceeds (debt reduction, buyback, etc.).</p> <p>APA raises 2018 production guide, but at higher capex: APA raised its 2018 production guidance by 1.2% to 468 MBoe/d, which was 1.2% above consensus, but in-line with JPMe at 467 MBoe/d. We expect the production guidance bump to be overshadowed by a \$400 MM increase to the full-year capex guide to \$3.4 billion, which stands 13% above the current consensus capex forecast. APA cited the addition of two drilling rigs to optimize the rig-frac crew ratio in the Midland Basin, increase in infrastructure spend to handle higher Permian Basin production, longer laterals at Alpine High, an increase in working interest at Garten in the North Sea, and the procurement of long lead time items for its Suriname drilling program for the unexpected capex raise.</p> <p>Macquarie wrote that the Company’s “Permian liquids production largely drove the overall production beat.” The analyst commented that Apache’s “3Q18 guide comes in line with our estimate ..., as the implied 4Q18 guide comes in above our estimate.” Macquarie noted that the Company’s “[h]igher production comes alongside significantly higher capex.” The analyst “continue[d] to place into question APA’s ability to execute on the material ramp through ’19 as we remain concerned on takeaway constraints”.¹⁹³</p> <p>Event APA reported 2Q18 earnings.</p> <p>Impact Mixed – Higher production comes alongside significantly higher capex while indications of flow through to higher production in 2019/20 are directionally reflected in our model. Alpine High midstream update is indicated as a 2H18 event with no additional detail provided.</p> <p>Raising 2018 Production and Capex Guidance: APA increased its ’18 US production guidance to 260mboe/d from 250-258mboe/d, compared to our 254mboe/d estimate. Total company-wide</p>

¹⁹³ Macquarie Research, “Apache Corp, Rising Capex Ahead of Alpine High Ramp,” August 1, 2018, 10:46 PM.

Exhibit 12

Impact Date	Event
	<p>3Q18 guide comes in line with our estimate, impacted by North Sea maintenance, as the implied 4Q18 guide comes in above our estimate. The company also increased its capex guidance to US\$3.4b from US\$3.0b, with a similar level of investment as 1H18. Attributed drivers of the increase include surface and subsurface adjustments at Alpine High in addition to modified completions in the Midland Basin.</p> <p>At Alpine High, APA placed its updated guidance of 45mboe/d which is at the midpoint of its prior 40-50mboe/d guidance. The full year Alpine High guidance suggests a material back-end weighted ramp. We continue to place into question APA's ability to execute on the material ramp through '19 as we remain concerned on takeaway constraints. While the company aimed to address some of those concerns, upwards of 20% of 2019 volumes are uncommitted with the majority completely exposed on pricing.</p> <p>Initial Color on 2019-2020 – The company mentioned that upside bias exists to its 2019/2020 production guidance of 410-440/475-510mboe/d (adjusted total); this compares to our 2019/2020 production estimates of 434/491mboe/d. Additional color is likely later in '18. Considering APA's strategy for long-term oil growth in Egypt, we question whether this strategy will manifest through the budget update. Our focus is on the incremental capex required considering a likely midstream transaction.</p> <p>2Q18 Beat Driven by US Liquids Production – Permian liquids production largely drove the overall production beat. Permian crude production of 90mb/d came in above our 86mb/d estimate.</p> <p>Action and recommendation APA is growing production but alongside higher spending. Challenges to takeaway, both physical and economic, remain a focus. Operational momentum is beginning to develop but stiff headwinds await in 2019. Reiterate Underperform.</p> <p>Morgan Stanley wrote that the Company's "capex raise overshadows a solid quarter" in which production beat the analyst's estimate and consensus. The analyst commented that the Company "noted an upward bias to 2019 and</p>

Exhibit 12

Impact Date	Event
	<p>2020 production guidance ..., and expects Alpine High production to trend towards the upper range of 2019 guidance”:¹⁹⁴</p> <p>Solid quarter and modest increase in production guidance is offset by a ~13% increase in 2018 capex, due in part to Permian rig additions. We remain UW as rising spend weighs on free cash flow and limits potential shareholder return, as well as strategic flexibility for any midstream monetization.</p> <p>1.3% higher production overshadowed by a 13% increase in spending. Apache continued a theme we have seen dominate this earnings season so far, increasing full year capex guidance by 13% while raising adjusted production guidance by a modest +1.3% at the midpoint. The capex raise overshadows a solid quarter, with total production of 464 MBoe/d vs. consensus of 457 and our estimate of 456 MBoe/d. Adjusted production was 390 MBoe/d, which compares favorably to our 377 MBoe/d. Management noted an upward bias to 2019 and 2020 production guidance which will be revisited later this year, and expects Alpine High production to trend towards the upper range of 2019 guidance of 85-100 MBoe/d. The Permian was strong, with oil production of 90 MBoe/d versus our estimate of 86 MBoe/d. The release was silent on midstream strategy. Details around APA’s planned Alpine High midstream monetization remains a key catalyst in 2H18. We expect the majority of proceeds to be directed toward funding future capex, rather than supporting meaningful return of cash to shareholders, and remain Underweight.</p> <p>Look to the call for more details around the capex raise. The ops report noted 5 drivers behind the guidance raise: (1) completion efficiencies requiring 2 additional rigs to optimize Midland rig-frac crew ratio; (2) longer laterals and larger fracs at Alpine high; (3) pull forward of infrastructure spend for higher Permian production; (4) increased working interest and upsizing topside facility at Garten; (5) long lead time items for Suriname drilling program/ other exploration.</p>

¹⁹⁴ Morgan Stanley, “Apache Corp, Higher Spend Overshadows Solid Quarter; Remain UW,” August 2, 2018, 3:41 AM GMT (August 1, 2018, 11:41 PM).

Exhibit 12

Impact Date	Event
	<p>Nothing incremental on Alpine High midstream monetization. We continue to expect proceeds to be directed toward funding future spend rather than return of cash to shareholders, potentially disappointing versus expectations. With spend rising, it becomes increasingly important for APA to partially monetize midstream assets to fund further development of Alpine High (we estimate ~\$2.5Bn of remaining midstream investment post-2018 if equity options are exercised). Incorporating the two additional Midland rigs just announced, but before accounting for any strategic action on midstream, we forecast APA outspending cash flow by ~\$550-600mm in 2019.</p> <p>NatAlliance wrote that the Company's CFPS beat its estimate and consensus "due to higher production and higher realized prices." The analyst commented that "APA raised its 2018 production guidance by 1.2%" but "also raised its 2018 CapEx guidance by 13%." NatAlliance noted that "APA indicated that it was likely to raise its 2019 and 2020 production guidance in 2H18".¹⁹⁵</p> <p>We maintain a Hold Rating and a \$46 target on Apache Corp (APA, NYSE- \$43.88). Apache has reasonable assets and an ok balance sheet, but growth is below peers and its Permian assets are gassier.</p> <p>2Q18 Cash Flow Per Share Was \$0.14 Above Consensus. 2Q18 CFPS of \$2.39 was \$0.14 above Consensus due to higher production and higher realized prices. APA's 2Q18 production of 464,109 Boepd was 1.5% above Consensus, and oil production of 247,498 Bopd was 1.5% above Consensus. 2Q18 CapEx of \$833 mm was 5.6% above Consensus of \$790 mm.</p> <p>APA Raised Its 2018 Production Guidance By 1.2% While CapEx Guidance Was Increased By 13%. APA raised its 2018 production guidance by 1.2% to 468,000 Boepd from a range of 453-472,000 Boepd exclusively due to higher US production. However, APA also raised its 2018 CapEx guidance by 13% to \$3.4 billion.</p>

¹⁹⁵ NatAlliance, "Apache Corporation, 2018 Production Guidance Up 1% On 13% CapEx Bump; 2019/2020 Guidance Raise By YE18," August 2, 2018.

Exhibit 12

Impact Date	Event
	<p>APA Is Planning To Increase 2019 & 2020 Production Guidance Later This Year Based On Higher 2018 CapEx, Stronger Permian Well Performance & The Garten Discovery In The North Sea. APA's production posted a solid start to 2018 as Permian volumes have exceeded expectations based partly on better well performance. APA has increased 2018 CapEx largely to allow for increased Permian spend as it is adding two rigs in the Midland Basin, putting bigger fracs/longer laterals on Alpine High wells and accelerating Permian infrastructure spend. Higher oil prices clearly played a key role in the CapEx bump as APA's original budget was based on \$55 WTI. APA indicated that it was likely to raise its 2019 and 2020 production guidance in 2H18 as a result of higher Permian volumes as well as its Garten oil discovery in the North Sea. We currently expect APA to grow production by 12% in 2019 including Permian Basin production growth of 29%.</p> <p>Reported Permian Well Results Weren't Quite As Strong As Last Quarter. APA's latest Wolfcamp wells in the Midland had 30-day average IP rates of 167 Boepd per 1,000' of lateral (74% oil), which were 3% below last quarter. APA also reported 11 new Delaware Basin wells with average 30-day IP rates of 1,479 Boepd (44% oil), which were 17% lower than the 9 wells in 1Q18. At Alpine High, APA announced 4 new wet gas wells with recent production rates of 1,369 Boepd (14% oil), which were nearly identical to wet gas wells from 1Q18. However, a new 12 well lower BTU gas well pad at Alpine High had average recent rates of 7.85 MMcfepd per well, which were about half of the rates from 1Q18 wells, though these latest 12 wells are still inclining.</p> <p>APA Seems Very Confident That A Midstream Monetization At Alpine High Is Imminent. APA seems quite confident that a midstream monetization at Alpine High will close by YE18, which would likely be bullish. The structure of the pending deal isn't clear, but APA plans to separate spending into a separate vehicle by next year and wants to retain as much of the equity as possible in the asset going forward. It is still early days at Alpine High, and APA is likely to make better wells over time.</p> <p>Balance Sheet Leverage Is In-Line With Peers. APA's leverage is in-line with 2018 Net Debt/EBITDA of around 1.5x. However, the company has excellent liquidity with cash of</p>

Exhibit 12

Impact Date	Event
	<p>nearly \$1.0 bn and an undrawn \$2.1 bn revolver. We expect APA to slightly outspend cash flow in 2018 including the dividend, but we see APA flipping to a free cash flow positive position of around \$600 mm in 2019 at \$71 WTI. Post a midstream monetization, we wouldn't be surprised to see APA buy back stock in 2019.</p> <p>APA Trades At A Slightly Discounted Multiple Based On Lower Growth. Apache trades at a discounted multiple vs. peers with a 2019 TEV/DACF multiple of 5.0x at \$71/\$2.75 based on lower growth. This multiple also doesn't capture the full earnings power of Alpine High or its growing midstream business. APA also reflects \$63 WTI based on our NAV, which is a slight premium to peers. Our \$46 target is based on a blended 5.2x multiple of 2019 DACF and our \$49 NAV estimate (based on \$65/\$3.00).</p> <p>RBC wrote that the Company had “[a] good 2Q18 with Permian production and international price realizations outperforming,” leading to adjusted EPS and CFPS that was above the analyst’s estimates and consensus. The analyst commented that Apache’s “capital increase was more than anticipated but considering higher cash flow and production growth should be palatable.” RBC noted that the Company third quarter production guidance was “inline to our model”.¹⁹⁶</p> <p>Our View: A good 2Q18 with Permian production and international price realizations outperforming. The capital increase was more than anticipated but considering higher cash flow and production growth should be palatable. Investor focus remains on the midstream monetization event, which is a catalyst to reduce spending and potentially initiate a stock repurchase program.</p> <p>2Q18 recurring EPS/CFPS of \$0.50/\$2.42 was well above our \$0.36/\$2.09 and the \$0.39/\$2.23 consensus estimates. The outperformance was largely related to high commodity price realizations.</p>

¹⁹⁶ RBC Capital Markets, “APA - 2Q18 Earnings Beat; Spending and Production Increased,” August 1, 2018, 8:00 PM.

Exhibit 12

Impact Date	Event
	<p>2Q18 adjusted production for Egypt tax barrels and non-controlling interest of 390 Mboe/d (199 Mbbl/d oil) was above our 384 Mboe/d (197 Mbbl/d) model and the 383 Mboe/d guidance. Stronger performance in the Permian more than offset lower volumes in the UK. Capital spending of \$833 million was above our \$814 million estimates and Consensus estimates of \$780 million. Company guide was for spending of \$800 million.</p> <p>2018 Guidance Update Capital expenditures were increased by \$0.4 billion to \$3.4 billion, we were modeling \$3.1 billion. This reflects plans to maintain current activity levels. APA has drilled and completed Permian wells more quickly than planned.</p> <p>Production guidance was increased by 5 Mboe/d to 394 Mboe/d related to higher Permian production, including the Alpine High area. We were at 390 Mboe/d.</p> <p>APA now expects 2019 Alpine High production at the high-end of its 85-100 Mboe/d guidance range.</p> <p>3Q18 production guidance of 398 Mboe/d is inline to our model.</p> <p>RBC, in a later report, added that the Company's capex "increase largely relates to improved efficiencies which we think should drive 2019 growth above current expectations." The analyst increased its 2018 and 2019 adjusted EPS and CFPS estimates for the Company:¹⁹⁷</p> <p>Our view: The \$400 million of additional spend in 2018 exceeds our \$100-200 million expectation. However, the increase largely relates to improved efficiencies which we think should drive 2019 growth above current expectations. Management reiterated that it is "deep in the process" of a midstream transaction and that timing to announce was by YE18. This would free up capital for shareholder returns.</p>

¹⁹⁷ RBC Capital Markets, "Apache Corporation, Stay Tuned," August 2, 2018, 2:19 PM.

Exhibit 12

Impact Date	Event
	<p>Key points: 2Q18 EPS/CFPS of \$0.50/\$2.42 was well above our \$0.36/\$2.09 and the \$0.39/\$2.23 consensus estimates. The outperformance was largely related to higher commodity price realizations.</p> <p>2018 production guidance is +5 Mboe/d to 394 Mboe/d to account for better performance in the onshore US, specifically the Permian.</p> <p>The capital budget was increased by \$0.4 billion to \$3.4 billion reflecting increased activity in the Permian and to a lesser extent the North Sea and Suriname.</p> <p>Management hinted at upside to production outlooks for both US and international assets along with its Alpine High inventory. We expect that there could be a bigger market update by YE18 that includes the monetization of the midstream.</p> <p>Dollars well spent Higher capital spending is met with increased North American production. Driving the increased spend is incremental Midland activity, a result of efficiency improvements, facility expansions, and increased international spend from Garten and Suriname.</p> <p>We think the impact from increased Permian activity largely materializes in 2019. Alpine High production is now projected toward the high-end of the 2019 guide and Midland/Other Delaware efficiency improvements result in increased activity and production growth ahead of our previous expectations. We now model 2019 Permian production of 267 Mboe/d above the 245-260 Mboe/d guide.</p> <p>Upside potential for international assets We are incrementally more bullish on international growth potential. Notably, Egypt and North Sea offer the highest margin barrel production in the portfolio and incremental growth provides leverage to operating margins and cash flow.</p>

Exhibit 12

Impact Date	Event
	<p>We think North Sea potential could be under appreciated. Maintenance outages and poor asset performance have plagued the North Sea this year and led investors to a wait and see approach. Increasing confidence from management and a few material projects late this year/early 2019 provide a favorable setup.</p> <p>The addition of 650,000 acres in Egypt further bolsters the company's position and builds on 1.6 million acres of new concessions from 2017. Drilling is under way on the first well from new concession acquired in 2017.</p> <p>Scotia wrote that "Apache posted EPS, EBITDA and cash flow beats, with production exceeding expectations," and noted that the Company raised 2018 production guidance. However, Scotia "believe[d] th[e] increase [in Apache's capex guidance] may make investors balk a bit":¹⁹⁸</p> <p>QUICK TAKE: Apache posted EPS, EBITDA and cash flow beats, with production exceeding expectations by ~7 MBoe/d due to higher U.S. volumes. Looking ahead, the company's 2018 total production volumes are expected to be 394 MBoe/d, up from the prior midpoint of 389 MBoe/d (+1.3%), with the increase solely driven by the U.S. However, the company has also increased its 2018 capital budget to \$3.4 billion from \$3.0 billion, a sizable 13% hike, due to additional Midland rigs, longer laterals and larger completions in the Alpine High, higher infrastructure spending, and higher international expenses (North Sea/Suriname/Other). We believe this increase may make investors balk a bit, as it marks the largest increase in the large-cap group thus far this earnings season, and while this will likely trigger a better-than-anticipated production trajectory in 2019/2020 and is fundable within cash flow at current prices, the near-term optics are still less than desirable. Cost guidance is unchanged. We remain on the sidelines with respect to APA, and are instead waiting for a period when less capital investment is required to prompt growth, particularly in the Alpine High.</p> <p>KEY POINTS</p>

¹⁹⁸ Scotia Howard Weil, "Apache Corporation, Higher CapEx Dilutes An Otherwise Positive Release," August 2, 2018, 6:04 AM.

Exhibit 12

Impact Date	Event
	<p>Financial Results Exceed Estimates. APA posted recurring EPS and CFPS of \$0.50 and \$2.42, respectively, beating SHW at \$0.35 and \$2.20 and consensus of \$0.39 and \$2.23. Production was 390 MBoe/d, excluding Egypt tax barrels and noncontrolling interests, versus our estimate of 382 MBoe/d.</p> <p>Permian Driving Growth. The Permian drove the beat for the quarter and will continue to be the volume driver going forward. This pertains not only to the steep growth in the Alpine High, but also to the more traditional Midland and Delaware areas. Well results continue to meet or exceed expectations in all areas, although we continue to worry about the pricing dynamics in the region, particularly on the natural gas side, which is critical to the Alpine High.</p> <p>No Alpine High Midstream Transaction... But Getting Close. According to the company, progress has been made on reaching an agreement regarding the proposed transaction for the Alpine High midstream, and talks are now in advanced stages, with closing likely before year-end. The Alpine High is projected to have a notable long-term growth trajectory and should see meaningful interest on the midstream side, although it will be essential for APA to retain line of sight on product transport and marketability.</p> <p>Don't Forget About International. While the spotlight remains brightly focused on the Permian, the high-margin cash flow coming from the North Sea and Egypt is still important. As proof, during the quarter, cash margins in the North Sea and Egypt were \$53/Boe and \$45/Boe, respectively, far higher than the Permian at \$25/Boe.</p> <p>Societe Generale wrote that the Company had “a solid quarter” as adjusted EPS and DCFPS were better than the analyst’s estimate and consensus. The analyst commented that “[c]learly APA is ramping for a stronger 2019”:¹⁹⁹</p> <p>2Q18 Adjusted EPS/DCFPS (discretionary cash flow per share after common stock dividends) of \$0.50/\$2.17 were better than SGe of \$0.45/\$1.73 and Street of \$0.40/\$1.99. Reported 2Q18 EPS</p>

¹⁹⁹ Societe Generale, “Apache Corp, 2Q18 EPS beat. 2018 cap-ex increasing 13% to \$3.4bn to capture efficiencies. It should be within cash flow. '18e growth 13%,” August 2, 2018, 5:51 AM CET (August 1, 2018, 11:51 PM).

Exhibit 12

Impact Date	Event
	<p>was \$0.51/share and the \$0.01/share variance reflected unrealized derivative losses, asset sale gains and other offsetting transactions. Adjusted BOE output (sans Egyptian partner and tax barrels) of 390 MBOE/d was +6% QOQ, and driven by large US Permian and Midcontinent production growth, which offset flat international output. The US production mix had a slight reduction in the percentage oil production from 1Q18, but that reflected greater Alpine High output and will bounce around. But, when coupled with their global operations, APA's net output was 53% oil and with Ngls, 67% liquids. Sequential global commodity price realizations reflected stronger oil (+8%), Ngl (+8), and weaker natural gas (-11%) pricing. On the cost side, LOE was down 4% on a unit basis, G&A expenses didn't rise much, but DD&A did increase 3%/BOE. Irrespective, Adjusted EBITDAX QOQ rose 17% and CFFO, before working capital changes, +17%. The CFFO of \$932MM was greater than APA's costs incurred and GTP investment of \$922MM or on a net basis of \$833MM. Cash at quarter's end of \$972MM was down 10% from 1Q18, and LTD/Book capitalization was 52%.</p> <p>Operations observations and updated output plans: During 2Q18, APA ran 33 rigs (17 in the US and 16 internationally) which was down 1 international rig from 1Q18. On a completed well basis, APA added 8 more net wells in the US to 64, and 7 more net internationally to 31. In the Permian Midland, APA ran the same number of rigs and frac crews, and completed 22 wells and in the Delaware, ran 12 rigs and 2.5 frac crews (up 2 and 1 respectively QOQ). Collectively, APA completed 64 Permian wells in 2Q18 vs. 45 in 1Q18. We consider the Midland and Delaware basin results good, but note that Dixieland output wasn't as high as Burnside mentioned 1Q18. And in the Alpine High, results seemed solid and well spacing may be coming down as are costs per linear foot (\$1,260/ft, which is 9% lower). Permian basin gas and oil sales positioning was akin to 1Q18. Also mentioned was a \$400,000 per US well savings from self generated efficiencies. Internationally, 30 net wells were spud in Egypt and 11 net in the North Sea. APA increased its adjusted 2018 production volume guidance by 1% to 394 MBOE/d, which reflects 260 MBOE/d in the US (210 MBOE/d Permian, and 45 MBOE/d in the Alpine High) and 134 MBOE/d internationally, inclusive of 3Q18 North sea turnaround. As a consequence of greater efficiencies such as longer laterals and larger completions and Alpine High infrastructure buildout, APA increased its cap-ex to \$3.4 billion (+13%). APA plans to meet this cap-ex increase with its production based cash flow. Lastly, APA mentioned that it has</p>

Exhibit 12

Impact Date	Event
	<p>“progressed the Alpine High midstream transaction to advanced stages and anticipates a closing before year end”, which we think could return \$1+ billion back to APA, and might garner some call questions. Clearly APA is ramping for a stronger 2019. So, in our view, a solid quarter. Looking at the cash flow, we find Street concerns about excess gas exposure from Alpine High remain unjustified.</p> <p>UBS “expect[ed] a neutral reaction” from investors as Apache’s “quarter will likely be overshadowed by the higher capex guidance,” despite EPS, CFPS, EBITDAX, and production that all topped consensus:²⁰⁰</p> <p>Our Conclusion – Strong 2Q, Guidance Offset We expect a neutral reaction. Similar to many earnings reports, the current quarter will likely be overshadowed by the higher capex guidance. APA posted a solid 2Q beat where Midland and Delaware Basin drove better oil production. However, the \$400mn increase in the capital budget (+13%), relative to a ~1.4% 2018 production uplift will likely be the sticking point (shows up in 2019 growth?) and a focus on the conf call. Market also continues to wait on “oilier” Alpine High results. 2Q highlights included: (1) APA raising FY18 guidance by ~1.4% at the midpoint. (2) Increasing capex by ~\$400mn to ~\$3.4bn. (3) Alpine High Wet Gas test in Barnett. (4) Permian well cost update with Alpine High cost per lateral foot down 25% YTD and Midland costs down ~\$400k.</p> <p>The Quarter – Solid EPS / CFPS / EBITDAX came in at \$0.50 / \$2.43 / \$1,268 vs. consensus of \$0.40 / \$2.25 / \$1,124mn. Production drove the beat with total production coming in at ~464mboepd vs. our expectation of ~453mboepd and the Street’s ~457mboepd. Importantly liquids beat, with oil production of ~247.5mbpd above consensus / UBSe of 243.9 / 245.6mbpd, NGLs were the main beat coming in ~13% above our and 8% above the Street’s estimate. Per unit costs were a headwind in the quarter with lower LOE offset by higher transportation costs.</p> <p>Going Forward – Capex, North Sea, 2019 Guidance</p>

²⁰⁰ UBS, “Apache Corporation, Beat In Quarter, Capex Offset,” August 2, 2018.

Exhibit 12

Impact Date	Event
	<p>The increase capex is tied partly to non-productive capex (Suriname preparation for example), but we also suspect increased production shows up in 2019 despite no formal guidance change. We do note APA does imply 2019 volumes will be towards the high end of guidance, with Alpine High specifically expected to be towards the high end of the previous 85 – 100mboepd range. Question remains mix. Q318 will be negatively impacted by planned maintenance in North Sea.</p> <p>Valuation: Focus Questions – Call at 11AM ET Likely focus on: (1) Midstream solution / update on the process / structure being considered. (2) 2019 guidance update. (3) Alpine High well results / cost improvements.</p> <p>Wolfe wrote that the Company’s second quarter EBITDA and total production beat its estimate and consensus and the Company gave “another bump in [2018] domestic production as APA continues to execute well in the Permian.” The analyst remarked that “[t]he tools have also started coming into place for how APA will transport a rapidly growing production base next door at Alpine High, but we’re still looking for how the integrated midstream plans will come together and the amount of cash it can bring on the balance sheet, particularly as capex was bumped \$400MM”.²⁰¹</p> <p>Good Quarter But We Still Want The Midstream Transaction. For the second time in 2018 we got another bump in domestic production as APA continues to execute well in the Permian. The tools have also started coming into place for how APA will transport a rapidly growing production base next door at Alpine High, but we’re still looking for how the integrated midstream plans will come together and the amount of cash it can bring on the balance sheet, particularly as capex was bumped \$400MM. A deal will likely get done later this year and APA is growing crude oil volumes elsewhere in the Permian, but we prefer more concentrated oil growth and still have concerns over Permian natural gas price. Underperform.</p>

²⁰¹ Wolfe Research, “Apache Corp., Still Looking For That Alpine Midstream Magic,” August 1, 2018.

Exhibit 12

Impact Date	Event
	<p>Results. 2Q18 EBITDA of \$1.27Bn was above WR \$1.22Bn and Street \$1.13Bn. Total production beat the guidance and WR/Street, due to higher-than-expected US production volumes, while 2Q18 capex of \$833mm came in above the \$800mm forecast.</p> <p>2018 Production and Budgeted Bumped. APA increased its US production guidance to 260midpoint, the second small bump for 2018 driven by the Permian Basin with the current guide 4% higher vs. the original 250mboepd midpoint. Alpine High remains at the midpoint point of guidance while International comes down slightly on Egypt PSC impacts. APA also lifted its 2018 budget by 13% or \$400mm to \$3.4Bn, to fund two additional rigs in the Midland Basin and longer fracs and larger fracs at Alpine High. APA says the need for the incremental rigs is driven by completion efficiencies which have caused a mismatch between wells drilled and completed in the play. While other operators have experienced a similar dynamic and chosen to drop the rig, APA has gone the opposite direction.</p> <p>Alpine High Accelerating. Alpine High volumes grew 23% Q/Q and are forecast to jump 55+% in 3Q18, before climbing another 30+% in 4Q18. The growth comes alongside a ramp in completions, as APA will average 11 TILs/month over the last seven months of 2018, vs. 5 TILs/month to start the year. APA reiterated plans to complete the Alpine High midstream monetization before YE18 and has progressed it to advanced stages.</p> <p>Following the Company's disclosures on August 1 and 2, 2018, according to Bloomberg, the average of analysts' price targets for Apache stock increased to \$49.43 from \$49.26, or 0.35%. All 32 analysts who published investment ratings for the Company both before and after the earnings announcement maintained their ratings. (See Exhibit 5C.)</p> <p>Remark: Given the mix of information disclosed, including that: (i) "Apache posted EPS, EBITDA and cash flow beats, with production exceeding expectations," and raised 2018 production guidance;²⁰² and (ii) multiple analysts</p>

²⁰² Scotia Howard Weil, "Apache Corporation, Higher CapEx Dilutes An Otherwise Positive Release," August 2, 2018, 6:04 AM. *See also*, e.g., Bank of America Merrill Lynch, "Apache Corp, 2Q18 Earnings recap: EPS beats, lower costs and derivative gains; capex up 13%,"

Exhibit 12

Impact Date	Event
	thought the Company's "quarter will likely be overshadowed by the higher capex guidance," ²⁰³ the statistically insignificant Company-specific return on August 2, 2018 is consistent with that expected in an efficient market.
11/1/2018	<p>After market close on Wednesday, October 31, 2018, the Company announced its third-quarter 2018 financial results. For the quarter, Apache reported production of 476 mboe/d, revenue of \$1.98 billion, EPS of \$0.21, and adjusted EPS of \$0.63.²⁰⁴</p> <p>The consensus estimates of the Company's revenue and adjusted EPS were \$1.91 billion and \$0.47, respectively.²⁰⁵</p> <p>John J. Christmann IV, Apache's chief executive officer and president, commented on the Company's results:²⁰⁶</p> <p style="padding-left: 40px;">Apache continued our strong performance in the third quarter of 2018, delivering 31 percent growth in U.S. production year over year. The Permian Basin continues to be the key driver, with oil production up 16 percent and total production up 38 percent year over year. Our significant Brent and LLS oil price leverage and robust NGL realizations, combined with this production performance, resulted in impressive earnings and cash flow growth. Our positive</p>

August 2, 2018, 1:43 AM; Cowen and Company, "Apache Corporation, 2Q18 Earnings at a Glance," August 1, 2018; Societe Generale, "Apache Corp, 2Q18 EPS beat. 2018 cap-ex increasing 13% to \$3.4bn to capture efficiencies. It should be within cash flow. '18e growth 13%," August 2, 2018, 5:51 AM CET (August 1, 2018, 11:51 PM).

²⁰³ UBS, "Apache Corporation, Beat In Quarter, Capex Offset," August 1, 2018. *See also, e.g.,* Jefferies, "Apache, 2Q18 Beat; Strong 2Q, But US Capex Raised by \$400 MM," August 1, 2018, 9:00 PM; JP Morgan, "Apache Corp, 2Q18 Flash: Strong 2Q18 Results Overshadowed by Magnitude of Capex Increase; Stock Reaction-Negative - ALERT," August 1, 2018, 11:32 PM; Morgan Stanley, "Apache Corp, Higher Spend Overshadows Solid Quarter; Remain UW," August 2, 2018, 3:41 AM GMT (August 1, 2018, 11:41 PM); Scotia Howard Weil, "Apache Corporation, Higher CapEx Dilutes An Otherwise Positive Release," August 2, 2018, 6:04 AM.

²⁰⁴ Apache News Release, "Apache Corporation Announces Third-Quarter 2018 Financial and Operational Results," October 31, 2018. *See also GlobeNewswire*, "Apache Corporation Announces Third-Quarter Financial and Operational Results," October 31, 2018, 5:40 PM.

²⁰⁵ *Reuters*, "Apache Corp reports results for the quarter ended in September - Earnings Summary," October 31, 2018, 6:20 PM.

²⁰⁶ Apache News Release, "Apache Corporation Announces Third-Quarter 2018 Financial and Operational Results," October 31, 2018.

Exhibit 12

Impact Date	Event																																	
	<p>production trends will continue in the fourth quarter, prompting us to again raise our full-year 2018 U.S. production guidance</p> <p>During the third quarter, we also achieved a very important objective with the announcement of our Altus Midstream transaction. This will establish an entity capable of funding future midstream investment needs at Alpine High. Importantly, the deal will allow Apache to maintain control of the midstream buildout as we ramp up production at Alpine High.</p> <p>Apache also announced that it had “reinitiated share repurchase activity under an existing authorization which had 7.8 million shares remaining as of June 30, 2018. 924,000 shares were repurchased under this authorization in the third quarter and repurchases continue in the fourth quarter. Apache’s board of directors recently authorized an additional 40 million share-repurchase program.”²⁰⁷</p> <p>The Company also updated its fiscal year 2018 guidance and provided fourth quarter 2018 guidance, as follows:²⁰⁸</p> <table><tr><th colspan="3">FY 2018 Guidance</th></tr><tr><th>Daily Production (mboe/d)</th><th>Previous</th><th>Updated</th></tr><tr><td>United States</td><td>260</td><td>262</td></tr><tr><td>International</td><td>208</td><td>207</td></tr><tr><td>Reported Production</td><td>468</td><td>469</td></tr><tr><td>Less: Egypt Tax Barrels</td><td>34</td><td>35</td></tr><tr><td>Less: Egypt Noncontrolling Interest</td><td>40</td><td>39</td></tr><tr><td>Total Adjusted Production</td><td>394</td><td>395</td></tr><tr><th colspan="3">Capital Guidance (millions)</th></tr><tr><td>United States</td><td>\$2,200</td><td>\$2,400</td></tr><tr><td>International</td><td>\$700</td><td>\$700</td></tr></table>	FY 2018 Guidance			Daily Production (mboe/d)	Previous	Updated	United States	260	262	International	208	207	Reported Production	468	469	Less: Egypt Tax Barrels	34	35	Less: Egypt Noncontrolling Interest	40	39	Total Adjusted Production	394	395	Capital Guidance (millions)			United States	\$2,200	\$2,400	International	\$700	\$700
FY 2018 Guidance																																		
Daily Production (mboe/d)	Previous	Updated																																
United States	260	262																																
International	208	207																																
Reported Production	468	469																																
Less: Egypt Tax Barrels	34	35																																
Less: Egypt Noncontrolling Interest	40	39																																
Total Adjusted Production	394	395																																
Capital Guidance (millions)																																		
United States	\$2,200	\$2,400																																
International	\$700	\$700																																

²⁰⁷ *Ibid.*²⁰⁸ Apache News Release, “Apache, Third-Quarter 2018, Financial and Operational Supplement,” October 31, 2018.

Exhibit 12

Impact Date	Event		
	Alpine High Midstream	\$500	\$350
	Total	\$3,400	\$3,450
	<u>Income Statement Items</u>		
	Operating Costs		
	Lease Operating Expenses (millions)	\$1,450 - \$1,500	\$1,440
	Lease Operating Expenses (per BOE)	\$8.60 - \$8.80	\$8.41
	Gathering, Transmission, Processing (millions)	\$275 - \$300	\$350
	DD&A (per BOE)	\$14.25 - \$14.75	\$14.15
	General and Administrative Expenses (millions)	\$450 - \$475	\$440
	Financing Costs, Net (millions)	\$385	unchanged
	Cash Taxes (millions)	\$175 - \$225	\$235
	Exploration Expense (millions)	\$170	\$150
	<u>Quarterly Guidance</u>		
		<u>4Q 2018 Guidance</u>	
	Production (mboe/d)		
	United States	288	
	International (Adjusted)	<u>133</u>	
	Total Adjusted Production	421	
	Upstream Capital Investments (millions)	\$800	
	Lease Operating Expenses (millions)	\$353	
	Gathering, Transmission, Processing (millions)	\$91	
	Cash Exploration Costs (millions)	\$30	
	General and Administrative Expenses (millions)	\$110	
	Financing Costs (millions)	\$95	
	Cash Taxes (millions)	\$96	

Exhibit 12

Impact Date	Event
	<p>Christmann commented on the Company's guidance.²⁰⁹</p> <p>During the third quarter, we increased activity to optimize drilling and completions and improve efficiencies through longer laterals, larger fracs and facility expansions. Looking ahead to the fourth quarter, we expect our upstream capital spending to be in line with levels we have maintained for more than a year.</p> <p>As we head into 2019, we are well positioned to generate sustainable liquids production growth and positive free cash flow, while maintaining flexibility to respond quickly to changing industry conditions</p> <p>The Company held a conference call with investment analysts the following morning.²¹⁰</p> <p>Bank of America Merrill Lynch wrote that the Company's adjusted EPS beat its estimate and consensus, production "bettered guidance," and cash flow was "within 5% of consensus [which] puts the beat mainly on lower DD&A." The analyst noted that the Company's 2018 "US guidance has increased slightly" and "[p]relim 2019 guidance has capex of ~\$3bn with production suggested at the upper end of a previously announced range ... but with mix still the key issue for guidance subject to start-up of fractionation capacity".²¹¹</p> <p>C/flow in-line, EPS beats mainly on DD&A Apache's adj EPS of \$0.62 beat consensus \$0.47 (BofAML \$0.38). However c/flow within 5% of consensus puts the beat mainly on lower DD&A (8c) with the balance from Egypt (4c) and a mix of opex/realizations. Production of 401 Mboe/d bettered guidance (398 Mboe/d) as was the US (272 Mboe/d vs 270 Mboe/d guide), with sequential US growth predominantly gas from</p>

²⁰⁹ Apache News Release, "Apache Corporation Announces Third-Quarter 2018 Financial and Operational Results," October 31, 2018.

²¹⁰ Thomson Reuters, StreetEvents, "APA – Q3 2018 Apache Corp Earnings Call, EVENT DATE/TIME: NOVEMBER 1, 2018 / 3:00PM GMT," November 1, 2018, 11:00 AM.

²¹¹ Bank of America Merrill Lynch, "Apache Corp, 3Q18 earnings recap: EPS beat, c/flow inline; Alpine gas drives sequential growth," October 31, 2018, 10:43 PM.

Exhibit 12

Impact Date	Event
	<p>Alpine High (+17,000 boepd) as oil growth step stairs every other quarter on pad drilling. FY US guidance has increased slightly (+2 Mboe/d to 262 Mboe/d), with oil expected up 5,000 bopd in 4Q18 on total corporate spending within sight of consensus at \$3.4bn. Prelim 2019 guidance has capex of ~\$3bn with production suggested at the upper end of a previously announced range (410-440 Mboe/d) but with mix still the key issue for guidance subject to start-up of fractionation capacity. In our view, understanding the potential uplift on liquids can address DACF cashflow growth per share that is otherwise challenged by a forward curve that has sub \$3 gas.</p> <p>Added rig in Midland can improve oil growth For 2019 a modest pivot to the Midland basin with 1 rig added, capitalizes on reduced midstream spending post the Altus JV, with an incremental \$200mm allocated to drilling capital. By our estimates this can augment the growth mix between gas and oil although we still see gas at ~2/3 of expected US growth in 2019. Two issues can potentially improve visibility: fractionation timing and results from its first multi-well Bone Spring / Wolfcamp pad at Alpine high that can offer clarity on future oil potential of the play. Oil momentum should also improve with the rebound of NSea production from maintenance and a series of projects starts (Callater, initial production from Garten).</p> <p>Reiterate Underperform on tough relative outlook Missing from the release is an any update on asset sales (mid con) – but with 2019 E&P capex set at \$3bn, in line with our estimate and providing visible free cash flow supports a reinstated share repurchase program where the authorization has been reloaded (40mm or 11% of shares outstanding). Overall a solid quarter, but with a relative valuation still challenged by DACF growth per share depressed by what we view as a weak price outlook for US gas vs oil. Underperform, PO unchanged at \$45.</p> <p>BMO wrote that the Company’s 3Q18 EPS and production were better than its estimate and consensus. The analyst commented that the Company’s 4Q18 guidance on production was “better than [its] model ... although capex was above estimates,” and “[i]n 2019, production moves to the high end of prior guidance, as previously indicated, while</p>

Exhibit 12

Impact Date	Event
	<p>capex is above estimates.” BMO concluded that “[n]et, net higher production was known, but increased upstream capex was a surprise”:²¹²</p> <p>Bottom Line: Apache reported better EPS and EBITDAX, driven by better higher oil realizations versus our model, while oil production was in line on higher spending. Production for 4Q18 was better than our model, driven by Alpine High (Permian oil light) and North Sea, although capex was above estimates. In 2019, production moves to the high end of prior guidance, as previously indicated, while capex is above estimates. Net, net higher production was known, but increased upstream capex was a surprise.</p> <p>Key Points</p> <p>3Q18 production mostly in line, EPS/EBITDAX better on realizations, but capex hot. Apache reported 3Q18 EPS of \$0.63, above our/consensus \$0.53/\$0.47, while EBITDAX (net NCI) of \$1,287mm was also above our \$1,234mm. Better EPS and EBITDAX versus our model were mainly driven by better oil realizations. Total production of 476MBoe/d, beat our/consensus 469/473MBoe/d, while adjusted production of 401MBoe/d was also above BMO/guidance of 396/398MBoe/d. Oil of 243MBo/d was in line with our/consensus 244/242MBo/d, as better Egypt (+6) offset lower Permian (-5; flat Q/Q) versus our model. U.S. production was 2MBoe/d better than guidance, while International was 1MBoe/d above. Alpine High averaged 49MBoe/d, at the high end of guidance (40-50MBoe/d) and above our 49MBoe/d estimate. Capex was elevated with upstream investment of \$844mm (\$48mm land) being \$185mm above estimate, only partially offset by lower Alpine High midstream investment (\$122m vs. our \$155mm).</p> <p>4Q18 production higher but on increased capex. Apache guided to 4Q18 adjusted production of 421MBoe/d above our 412MBoe/d, driven by U.S. (+8) and International (+2), although Permian oil of 95MBo/d was 1MBo/d light to our model, while Alpine High was 8MBoe/d above (although 2018 guidance trimmed by 1MBoe/d). The acceleration of the North Sea Garten discovery into 4Q18 (vs. 1Q19) helped contribute to better international volumes. That said,</p>

²¹² BMO Capital Markets, “Apache, 3Q Beats on Oil Realizations, Volumes in Line on Higher Capex,” October 31, 2018, 10:51 PM.

Exhibit 12

Impact Date	Event
	<p>upstream capex of \$800mm is \$141mm above our model, resulting in a \$200mm raise to the 2018 budget.</p> <p>2019 production moves to high end. As previously indicated, Apache raised 2019 production to the high end of prior guidance (410-440MBoe/d), driven by both U.S. and International, although we were already modeling 441MBoe/d. Upstream capex was disclosed to be \$3Bn, which is slightly above our \$2.863Bn. Apache repurchased 0.924mm shares in 3Q (382mm outstanding) and indicated further repurchases in 4Q18, while increasing its authorization to 40mm shares.</p> <p>Credit Suisse wrote that the Company's "3Q EPS/EBITDX/production beat" consensus. The analyst commented that Apache's "2019 guidance implies better capital efficiency than embedded in expectations" and fourth quarter volume guidance was "just below expectations".²¹³</p> <p>3Q EPS/EBITDX/production beat. Clean EPS of \$0.63 beat consensus & CSe of \$0.47/\$0.48. EBITDX rose ~7% QoQ to \$1.38bn, exceeding CSe/consensus by ~10%. Relative to CSe, the beat was driven by higher than expected price realizations. Consolidated production of ~476 MBoed (+6% YoY) was above guidance and consensus' 473 MBoed but was in line with CSe. Realized prices of \$44.94/Boe were ~4% above CSe. Unit costs were ~1% above CSe (~4% <i>below</i> ex exploration expense).</p> <p>2019 guidance implies better capital efficiency than embedded in expectations. APA disclosed a 2019 upstream budget of ~\$3.0bn, just below this year's level of \$3.1bn & below prior/CSe consensus of ~\$3.2bn (ex \$250MM of midstream spend). Despite lower spending than expectations, APA continues to expect 2019 volumes to be at the high end of its previously disclosed "reported" guidance of 484-514 MBoed (~10% YoY with U.S. ~14% YoY), in line with prior CSe but above comparable consensus' 507 MBoed. At current futures strip prices, we forecast APA should generate an organic FCF surplus (after divi) of ~\$425MM next year.</p>

²¹³ Credit Suisse, "Apache Corporation, 3Q Beats; Solid 2019 Guidance & Jump Starts Share Repurchase Program," November 1, 2018.

Exhibit 12

Impact Date	Event
	<p>Other key takeaways from 3Q results: 1) raised 2018 upstream budget by \$200MM to \$3.1bn due to timing of capital activity and lease acquisition investments (\$115MM in 2H18); 2) adjusted its 2018 total “reported” production guidance from 468 MBoed to 469 MBoed (+10% YoY) and guided to 4Q18 volumes of 495 MBoed (just below expectations) albeit Permian production guidance is above our prior estimate; 3) repurchased ~0.9MM shares during 3Q under its existing authorization (~6.9MM shares remaining) and authorized an additional 40MM share program (no timeframe provided); and 4) we made minor changes to our 2018-20E CFPS forecasts.</p> <p>Fully valued vs. peers. \$46 TP is based on ~6.2x normalized 2019E DCF & implies ~0.65x NAV. Risks: Permian gas diffs, Alpine High execution</p> <p>Evercore wrote that the Company’s third quarter production was “slightly above our/street estimates” and CFPS was “~1% above” the analyst’s estimate. The analyst observed that the Company’s “2019 guidance for Alpine ... was maintained” and a “streamlined portfolio is providing increased visibility and APA has provided 2019/20 volume guidance”:²¹⁴</p> <p>Largely in line quarter provides a good foundation for 2019 While market focus at APA has been squarely on Alpine High and the ongoing development program, the broader portfolio does provide both volume and margin benefits that were clear to see in 3Q results. The Brent levered assets (North Sea/Egypt) are ticking along, low growth but nice to have in this environment. In the domestic onshore, the Permian (Midland) performance gap to peers narrowed long ago and APA should be commended for drilling through this year and not flinching when basis fears were on the highs (added rig to optimized frac portfolio). Alpine High is still the centerpiece here and volumes of ~44 mboe/d were down modestly from the ~54 mboe/d July exit rate, on 23 gross operated wells in 3Q. The 2019 guidance for Alpine of 85-100 mboe/d was maintained. With the upcoming close of Altus midstream and the offset of funding requirements for Alpine High infrastructure (still consolidated in APA financials), the transaction solves the funding conundrum for Alpine High (~\$1.5 Bn) while APA retains 71% (+</p>

²¹⁴ Evercore ISI, “Apache, Diversification has its benefits,” November 1, 2018, 3:22 PM.

Exhibit 12

Impact Date	Event
	<p>performance incentives) and captures value beyond the wellhead. Since the Altus announcement, APA has underperformed the group by ~800 bps, suggesting the market is still mulling the move to full development at Alpine and potential for value (not just boe volume) growth. Maintain In-Line.</p> <p>3Q Results review: APA reported total 3Q18 production of 476 mboe/d (incl. NCI), slightly above our/street estimates of 473/468 mboe/d. Total US production of 272 mboe/d was in line with ours at 272 mboe/d estimate (APA had explicitly guided 3Q18 at 270 mboe/d). US oil was 103 mbpd vs our 107, a 2% decline vs 2Q. Total Permian volumes grew ~22 mboe/d sequentially, ~600 bpd of which was oil. International volumes were 2.3 mboe/d above our 201.5 mboe/d est. impacted by North Sea turn arounds. Adjusted CFPS of \$3.11 was ~1% above our \$3.07/shr (adjusted). Additionally, consolidated O&G capex of \$844 mm was in line with our \$851mm estimate.</p> <p>Highlights from the call.</p> <p>2019 Outlook: A streamlined portfolio is providing increased visibility and APA has provided 2019/20 volume guidance (11-13% CAGR). Based on 2H18 trends and the set up for 2019, APA disclosed a \$3 Bn 2019e upstream budget and expects production towards the high end of 410-440 mboe/d guidance range (15% growth in the US). A few questions on the call centered upon the cadence of capital spend and management outlined a view that while puts and takes impact quarterly accruals, that ~\$750 mm has been the scope of quarterly upstream spend YTD. Note, midstream and other spend will be consolidated in the financials post close of Altus and we assume a \$4.6 Bn of total spend.</p> <p>Alpine High update. Production undershot guidance modestly at ~44 mboe/d, as a processing upset required pigging and led to a two day field shut down. It is early days in the play and these upsets should be expected, in our view. APA outlined that pad development is reducing well costs as expected and D&C is trending ~25% lower through the first 9 months of 2019 on a YoY basis. APA provided an update on the Blackfoot pad which is a 12-well test of 660-ft spacing in the Woodford landing zone. A peak 30-day IP rate of 105 mmcf/d and 280 bpd (on relatively small completion designs). The rapid move to pad development (and associated well cost</p>

Exhibit 12

Impact Date	Event
	<p>reductions and resource learnings) is one of the benefits of the unencumbered and contiguous acreage position APA holds at Alpine.</p> <p>US Capex/Production Raised: Raised US production by 2 mboe/d (now 262 mboe/d, raised at 2Q to 260 mboe/d from 250-258 mboe/d). APA raised FY 2018 upstream capex to \$3.1 Bn (from \$3 Bn previously) and expects \$800 mm of spend in 4Q assuming a closing of Altus in early November. Initial guidance envisioned 10-15% cost inflation while steel tariffs, fuel costs, chemicals, and labor are all continuing to put upward pressure on costs. Reduced costs for rigs and pumping in 2019 accounts for the modest deflation in the 2019 upstream budget, particularly for the US onshore.</p> <p>Permian update: 18 rigs running, APA expects a more oil weighted 4Q and exit rate growth. 13 wells online in the Midland in 3Q. Activity recently expanded beyond the Powell, Wildfire and Azalea areas and management called out the delineation of the NM slope play and adding landing zones at Dixieland and Pecos Bend (Delaware). Implication being Permian activity (outside of Alpine) is shifting from the core of the southern Midland to other areas of the portfolio.</p> <p>Jefferies wrote that the Company's adjusted EBITDA and EPS beat its estimate and consensus "as higher gas volumes offset lower than expected oil and NGLs, and the company realized higher pricing across the board." The analyst noted that Apache "raised 2018 E&P spend and production guidance 7% and less than 1%, respectively," and expected 2019 adjusted production "at the high end" of guidance:²¹⁵</p> <p>Positive. APA reported a 3Q18 beat, and raised 2018 E&P spend and production guidance 7% and less than 1%, respectively. For 2019, APA expects to execute a \$3Bn capital plan and deliver adjusted production at the high end of the 410-440 mboe/d range. The company also reported it began buying back shares in 3Q18 on a 2013 repurchase plan, and authorized another 40MM shares.</p>

²¹⁵ Jefferies, "Apache, 3Q Beat; Reinstates Share Repurchase Program," October 31, 2018, 9:04 PM.

Exhibit 12

Impact Date	Event
	<p>APA 3Q18 Beat. APA reported adjusted EPS of \$0.63, ahead of the JEF estimate of \$0.44 and cns of \$0.43, as higher gas volumes offset lower than expected oil and NGLs, and the company realized higher pricing across the board. Reported volumes of 476.3 mboe/d were in line with JEF estimates and above cns of 472.7 mboe/d. Oil volumes of 243.4 mbbbls/d were below the JEF estimate of 246 mbbbls/d. Adjusted EBITDA of \$1.33Bn was ahead of the JEF estimate of \$1.25Bn and cns of \$1.24Bn.</p> <p>Midland Basin Ops. In 3Q18, APA drilled and completed 11 G wells, and added one rig to optimize its rig-to-frac crew ratio. APA noted that activity continues to focus on pad development in the Wolfcamp formation, and highlighted a number of Upton wells (all targeting the Wolfcamp formation), which include three CC4045 East wells with an IP30 of 1,563 Boe/d (75% oil) on an average lateral length of 10,483', three Latzel 4946 wells with IP30 rates of 1,524 Boe/d (76% oil) on an average lateral length of 10,477', and another three shorter Latzel 4946 wells with IP30 of 1,590 boe/d (76% oil) on an average lateral length of 7,793'.</p> <p>Delaware Basin/Alpine High Ops. In 3Q18, APA drilled and completed 23 G wells. At Alpine High, production averaged 49 mboe/d, a 52% increase sequentially. At Alpine High, APA also highlighted 12 Blackfoot wells that targeted the Woodford formation and averaged IP30 rates of 1,770 boe/d (1% oil), one Mohican 201 well and one Lumbee 201 well that both targeted the Barnett formation, and averaged IP-30 rates of 1,842 boe/d (17% oil), and 1,985 boe/d (12% oil), respectively. In the Delaware basin, APA highlighted 6 Burnside wells that targeted the Wolfcamp formation, and averaged IP-30 rates of 1,625 boe/d (37% oil).</p> <p>International Ops. In 3Q, APA averaged 12 rigs in Egypt, and three rigs in the North Sea. In Egypt, APA drilled and completed 24 G wells with 83% success rate, and reported Egypt adjusted production (ex. minority interest and the impact of tax barrels) of 78 mboe/d, a 2% decline sequentially (from 80 mboe/d in 2Q). APA also noted that it has acquired ~ 1MM acres out of 2.6MM acre seismic shoot, and initiated the next phase of the program in its new Northwest Razzak concession. In the North Sea, APA reported a 6% decline in production, 51 mboe/d in 3Q vs 54 mboe/d in 2Q, due to scheduled turnaround maintenance. APA expects</p>

Exhibit 12

Impact Date	Event
	<p>production to increase in 4Q, as the company TIL'd the 4th development well in the Callater field in September, and plans to accelerate initial production at Garten.</p> <p>Guidance. APA increased its US upstream spend by \$200MM to \$2.4Bn, while total capex goes to \$3.45Bn (from \$3.4Bn) as Altus is expected to pick up the \$150MM spend APA was guiding for Alpine High infrastructure. As a result, US production guidance goes to 262 mboe/d (from 260 mboe/d) and total production increases to 395 mboe/d (from 394 mboe/d). For 2019 the company expects capital expenditures of \$3Bn and adjusted production at the high end of its 410-440 mboe/d guidance range, which compares to our prior estimate of \$3.1Bn to deliver volumes slightly above the high end.</p> <p>Key Points for the Call. Company repurchased 924k shares in 3Q18 under a repurchase plan in place since 2013, and including a recently authorized 40MM program has a total of 46.9MM remaining</p> <p>Additional \$200MM of capital spend in US upstream in 2018</p> <p>JP Morgan wrote that “APA delivered a solid 3Q18 result as cash flow topped consensus by 6% and matched our forecast,” as “[t]he driver of the cash flow beat was higher than expected realizations as US production ... came in 1% ahead of our model.” The analyst expected the Company’s “production guidance bump to be overshadowed by a[n] ... increase to the full-year upstream capex guide to \$3.1 billion”.²¹⁶</p> <p>JPM View: Stock Reaction—Positive. As we previewed, APA delivered a solid 3Q18 result as cash flow topped consensus by 6% and matched our forecast. The driver of the cash flow beat was higher than expected realizations as US production of 262 Mboe/d came in 1% ahead of our model. Despite FY18 upstream capex being raised by 7% or \$200 MM (net capex increased by a lesser \$50 MM or 1.5% as APA expects 4Q18 midstream capex of \$150 MM to be funded by Altus Midstream upon closing), we view this release as positive given Permian growth along</p>

²¹⁶ JP Morgan, “Apache Corp, 3Q18 Flash: Upside Results; Expecting In-Line 2019 Volumes at Lower Capex; Stock Reaction-Positive - ALERT,” October 31, 2018, 9:02 PM.

Exhibit 12

Impact Date	Event
	<p>with the company's Garten North Sea development accelerated into 4Q and management's expectations of \$3.0 billion of capex in 2019 vs. JPMe at \$3.2 billion. Further, APA bumped 4Q US production to 288 Mboe/d at the midpoint (+3% vs. JPMe) that we suspect will largely be driven by the 11 gross drilled and completed Midland Basin Wolfcamp wells. APA's Midland wells are cleaning up nicely thus far, with 9 wells averaging 1,559 Boe/d (76% oil) after 30 days of production, and thus leading to improved margins. On the call look for color commentary on the company's Mid-Con asset that is currently on the market and that we suspect could fetch ~\$800mm in proceeds, according to our estimates. APA announced the repurchase of 924K shares under its existing 7.8 MM authorization, with plans to authorize an incremental 40 MM shares for repurchase. Also look for a question on the company's idle EF asset as A&D activity in the region is heating up with CHK / WRD and DNR / PVAC.</p> <p>APA raises 2018 production guide but at higher capex: APA raised its 2018 reported production guidance by 1 MBoe/d or 0.2% to 469 MBoe/d, which was in-line with consensus and 0.5% above JPMe at 468 MBoe/d. The guidance raise was driven by 0.8% higher U.S. volume guidance at 262 MBoe/d vs. earlier guidance of 260 Mboe/d, which was slightly offset by 0.5% lower International volume guidance at 207 MBoe/d vs. earlier guidance of 208 Mboe/d. We expect the production guidance bump to be overshadowed by a \$200 MM or 6.9% increase to the full-year upstream capex guide to \$3.1 billion. However, the total FY18 capex guidance increase only by \$50 MM or 1.5% to \$3.45 billion from its earlier guidance of \$3.4 billion as APA assumes 4Q18 midstream capex of \$150 MM will be funded by Altus Midstream upon closing.</p> <p>Macquarie wrote that the Company's "3Q18 FCF came in below expectations, driven in part by higher than expected capex," while "EBITDA came in above our estimate due to higher than expected crude price and higher NG production, which offset generally higher op costs and lower domestic oil volumes." The analyst commented that "APA expects 2019 production to come in at the high end of its ... adjusted production guidance," but "consensus expectations had already been set towards the higher end".²¹⁷</p>

²¹⁷ Macquarie Research, "Apache Corp, Mixed Bag of Treats," October 31, 2018, 9:26 PM.

Exhibit 12

	<p>Impact</p> <p>Mixed: 2019 upstream capex guide comes in below our estimate as production is likely already baked into the stock. Midstream is still a key driver of the near-term outspend and remains a focus.</p> <p>Production Outlook Relatively Aligned with Expectations: APA expects 2019 production to come in at the high end of its 410-440mboe/d adjusted production guidance; this compares to our 449mboe/d estimate. Additionally, we think consensus expectations had already been set towards the higher end, as the company had previously suggested that production was likely coming in at the higher end.</p> <p>Mixed Bag on Capital Budget: APA guided 4Q18 upstream capex to US\$800m compared to our estimate of US\$725m. Of the US\$800m, US\$65m is allocated for leasehold acquisition and retention. Looking to 2019, the quarterly capex guide decreases to an average US\$750m per quarter, or US\$3b for the full year, which compares to our US\$3.2b estimate. The call on capital for leasehold appears to decrease in 2019 over 2018.</p> <p>Midstream Spend still a Focus: The company did not guide to midstream spend post-announcement of Altus Midstream, which is expected to close during 4Q18. We remain focused on Altus capex given our estimate for US\$1.6b spend during 2019 and a material near-term outspend at the midstream level.</p> <p>3Q18 FCF Miss: 3Q18 FCF came in below expectations, driven in part by higher than expected capex. Relative to our estimates, upstream investment (US\$844m of US\$966) drove capex higher. We look to EBITDA as discretionary cash flow was impacted by differences in the deferred tax rate. Specifically, EBITDA came in above our estimate due to higher than expected crude price and higher NG production, which offset generally higher op costs and lower domestic oil volumes.</p> <p>Action and recommendation</p> <p>We remain focused on the growth of Alpine High into our view for a constrained local NG environment. While the 2019 upstream capex guide is encouraging, we remain focused on the near-term consolidated, company-wide outspend.</p>
--	---

Exhibit 12

Impact Date	Event
	<p>Macquarie, in later report, “upgrade[d] Apache to Neutral from Underperform” as “severe and continued [stock price] underperformance now more accurately reflects the risks to the name.” The analyst increased its 2018 and 2019 EPS and CFPS estimates for the Company but lowered its price target to \$37 from \$39:²¹⁸</p> <p>Key points We upgrade Apache to Neutral from Underperform. Risks to the name are more accurately reflected in the stock price. Execution challenges could persist and still bear monitoring.</p> <p>Event We upgrade Apache to Neutral from Underperform.</p> <p>Impact Risks More Accurately Reflected: Since February 2017, APA is down ~37% vs crude up 18% and the S&P 1500 E&P index down 7% (see Upside Limited by Delaware Basin Peer Growth). Since our Macquarie Spotlight call on shorting APA on October 19, 2017, APA is down 15%, oil is up 23% and the S&P 1500 E&P index is up 10%. Since October 9, 2018, in the current downturn, APA is down 26% vs crude down 20% and the S&P 1500 E&P index down 17%. We believe such severe and continued underperformance now more accurately reflects the risks to the name.</p> <p>Not Out of the Woods, Yet: While we believe the risks are more accurately reflected, we remain focused on key execution challenges. The largest of those challenges are risks to oil and natural gas takeaway. Specifically on natural gas, should takeaway become constrained, production and cash flow estimates could become challenged. Managing service cost inflation and capital efficiency will also be critical components of reinvigorating the stock. On the flip side, should multiple compression across the space continue or should crude prices continue to come under pressure, Apache could continue to be weak.</p>

²¹⁸ Macquarie Research, “Apache Corp, Risks Being More Accurately Reflected,” November 2, 2018, 4:00 AM.

Exhibit 12

Impact Date	Event
	<p>Focus on Free Cash Flow Generation: While 2019 upstream capex guidance is encouraging, we remain focused on the near-term consolidated outspend and the company's ability to progress to a consolidated free cash flow generating position while still providing returns-based economic production growth.</p> <p>Earnings and target price revision Revise 2018 EPS/CFPS estimates to US\$1.81/US\$9.90 from US\$1.51/US\$9.79. We revise our 2019 EPS/CFPS estimates to US\$1.04/US\$10.35 from US\$0.89/US\$10.17. Upgrade to Neutral, target to US\$37 from US\$39.</p> <p>Price catalyst 12-month price target: US\$37.00 based on an EV/EBITDA methodology. Catalyst: Asset sales, Takeaway certainty, well performance, commodity prices.</p> <p>Action and recommendation While Apache must demonstrate improving operational momentum, we believe the stock more accurately balances the challenges the firm is likely to face. We upgrade to Neutral from Underperform but lower our target price to US\$37 from US\$39.</p> <p>NatAlliance wrote that the Company's third quarter CFPS, production, and capex were above consensus expectations. The analyst observed that the Company raised its 2019 production "[a]round 2% [b]ut [r]aised [i]ts 2019 CapEx [g]uidance [b]y [r]oughly 3%." NatAlliance noted that the Company's "growth is below peers and its Permian assets are gassier".²¹⁹</p> <p>We maintain a Hold Rating and a \$41 target on Apache Corp (APA, NYSE- \$36.51). Apache has reasonable assets and an ok balance sheet, but growth is below peers and its Permian assets are gassier.</p>

²¹⁹ NatAlliance, "Apache Corporation, 2018 Production Up 0.2% On 6% CapEx Bump; 2019 Production Guidance Raised By 2%," November 1, 2018.

Exhibit 12

Impact Date	Event
	<p>3Q18 Cash Flow Per Share Was \$0.11 Above Consensus. 3Q18 CFPS of \$2.56 was \$0.11 above Consensus due to higher realized prices. APA's 3Q18 production of 476,255 Boepd was 0.7% above Consensus, and oil production of 243,436 Bopd was 0.5% above Consensus. 3Q18 CapEx of \$966 mm was 13% above Consensus of \$856 mm.</p> <p>APA Raised Its 2018 Production Guidance By 0.2% While CapEx Guidance Was Increased By 6%. APA raised its 2018 production guidance by 0.2% to 469,000 Boepd from prior guidance of 468,000 Boepd exclusively due to higher US volumes. However, APA also raised its 2018 consolidated CapEx guidance by 6% to \$3.6 billion.</p> <p>APA Raised Its 2019 Production Guidance Both Around 2% But Raised Its 2019 CapEx Guidance By Roughly 3%. APA's production has been strong in 2018 as Permian volumes have exceeded expectations based partly on better well performance. APA is raising its 2019 production guidance to the high end of previous guidance which is around a 2% bump as a result of higher Permian volumes as well as its Garten oil discovery in the North Sea which is coming on early in 4Q18. The Company is also raising 2019 CapEx from prior guidance of just under \$3 billion to \$3 billion. We currently expect APA to grow production by 12% in 2019 which is above the Company's guidance of 10% YoY growth.</p> <p>APA Has Announced A More Robust Stock Buyback Program. APA repurchased around 0.9 mm shares in 3Q19, and the Board has authorized the repurchase of an additional 40 mm shares, which represents just over 10% of outstanding shares.</p> <p>Reported Permian Well Results Were Similar To Last Quarter. APA's latest Wolfcamp wells in the Midland Basin had 30-day average IP rates of 166 Boepd per 1,000' of lateral (76% oil), which were basically the same as last quarter but with a 2% higher oil cut. The Company also reported 6 new Delaware Basin wells with average 30-day IP rates of 1,625 Boepd (37% oil), which were 10% higher than the 11 Delaware wells in 2Q18 but with a much lower oil cut. At Alpine High, APA announced 2 new wet gas wells with recent production rates of 1,900 Boepd (14% oil), which were 39% higher than the wet gas wells from 2Q18. Additionally, APA</p>

Exhibit 12

Impact Date	Event
	<p>updated production from its 12 well lower BTU gas Blackfoot well pad at Alpine High as the wells had average 30-day rates of 10.620 MMcfepd per well, which was about 35% higher than the rates quoted with 2Q18 earnings.</p> <p>APA Should Close Its Midstream Monetization At Alpine High Shortly & Plans To Execute Its Options To Acquire Equity Interests In Several Permian Pipelines By YE18. APA plans to close its midstream monetization at Alpine High in November and plans to exercise its options to acquire interests in a number of Permian pipelines over the next few months.</p> <p>Balance Sheet Leverage Is Slightly Above Peers. APA's leverage is slightly above peers with 2019 Net Debt/EBITDA of around 1.4x. However, the company has excellent liquidity with cash of nearly \$600 mm and an undrawn \$2.1 bn revolver. We also expect APA to produce around \$500 mm in free cash flow in 2019 post dividend at \$71 WTI. We wouldn't be surprised to see APA slightly increase the dividend in 2019 in addition to the recently announced stock buyback plan.</p> <p>APA Trades At A Slightly Discounted Multiple Based On Lower Growth. Apache trades at a discounted multiple vs. peers with a 2019 TEV/DACF multiple of 4.5x at \$71/\$2.75 based on lower growth. This multiple also doesn't capture the full earnings power of Alpine High or its growing midstream business. APA also reflects \$57 WTI based on our NAV, which is in-line with peers. Our \$41 target is based on a blended 4.8x multiple of 2019 DACF and our \$49 NAV estimate (based on \$65/\$3.00).</p> <p>Piper Jaffray wrote that the Company's adjusted EPS was above its and consensus estimates "anchored by robust realizations and slightly better vols with unit costs mostly in-line." However, the analyst "expect[ed] investors to focus on the pace of 'oil mix dilution' through 2019 and on the drivers behind rising upstream costs in 2H18 (~\$200mm) and the potential risk to next year's \$3Bn budget".²²⁰</p>

²²⁰ Simmons Energy, A Division of Piper Jaffray, "Apache Corporation, Q3'18 Quick Look: More Questions Than Answers," November 1, 2018, 3:34 AM.

Exhibit 12

Impact Date	Event
	<p>3Q beat (Adj EPS of \$0.63/sh vs. SE of \$0.40/sh) anchored by robust realizations and slightly better vols with unit costs mostly in-line. Nevertheless, we expect investors to focus on the pace of ‘oil mix dilution’ through 2019 and on the drivers behind rising upstream costs in 2H18 (~\$200mm) and the potential risk to next year’s \$3Bn budget. And while sustained execution on netback optimization would certainly de-risk the outlook for cash flow growth relative to peers, we see greater visibility elsewhere. Positives: 1) CFO beat (\$2.60 vs. SE of \$2.35/sh) 2) Realizations came in 2.5% ahead of SE 3) Resumed buybacks in Qtr Negatives: 1) 3Q Capex came in ahead of SE (~\$90mm) with 4Q revised higher 2) Permian oil vols flat QoQ with FY18 Alpine High target revised lower to 44 Mboe/d (from prior 45 Mboe/d) 3) 4Q int’l vols light (133 vs. SE 138 Mboe/d).</p> <p>3Q18 & 4Q18 Vols In-line But Oil Mix Light vs. SE ests: Adjusted net vols of 401 Mboe/ d were a slight beat vs. SE 398 Mboe/d, however a lower Permian oil mix (vols flat QoQ) drove a 5 Mbo/d oil miss though volumes are expected to recover to 95 Mbo/d in 4Q (vs. 90 Mbo/d in 3Q). Alpine High 3Q production was broadly in-line though facility downtime earlier this month has resulted in a downward revision (~4 Mboe/d) to prior expectations for 4Q. Total production guide for 4Q looks broadly in-line (421 vs. SE 420 Mboe/d) representing a 20 Mboe/d QoQ increase with higher Permian gas volumes offsetting lower “oily” int’l production vs. our initial expectations.</p> <p>FY19 Spend of \$3Bn to Drive Vols Toward High-End of Guide.... But What’s the Mix? Based on a disclosed \$3Bn budget (consistent with maintaining current activity levels of 18-19 Permian rigs into next year), APA expects FY19 vols at high-end of prior guide (410-440 Mboe/d) consistent with SE ests (440 Mboe/d on \$3Bn in upstream capital). However, we remain cautious on the pace of ‘oil mix dilution’ into 2019 stemming from declining contributions from APA’s assets in the UK and Egypt. In light of the downward revision to 4Q int’l volumes, headwinds from Egypt PSC effects, aggressive declines in recent UK project start-ups (Callater), and the announced planned disposal of two of APA’s marquee UK pre-FID projects by YE18, an updated discussion with investors around the role and outlook of APA’s international assets is likely warranted in our view.</p>

Exhibit 12

Impact Date	Event
	<p>Buyback Program Restarted Despite 3Q Funding Gap: A beat on CFO (\$1Bn vs. SE \$903mm) was mostly offset by higher than expected capex (incurred) in the Qtr with headline FCF of ~\$30mm in-line with SE estimates. However, with incremental cash outlays associated with NCI distributions (~\$100mm) and dividends (~\$100mm) driving a funding gap in the Qtr, the modest restart to the buyback program (924k share repurchased in 3Q) is unlikely to increase investor conviction in the near-term outlook for FCF growth relative to peers, in our view. APA authorized an additional 40 mm share authorization to the program driving a total remaining program of nearly 47mm shares exiting 3Q.</p> <p>RBC wrote that the Company's adjusted EPS and CFPS beat its and consensus estimates as "outperformance was related to higher commodity price realizations and lower G&A costs, partially offset by production mix and high cash operating costs." The analyst commented that Apache's "2019 outlook for better capital efficiency with FCF for a new stock buyback should be viewed favorably." RBC observed that the Company's increased 2019 production guidance was "consistent with" its expectations.²²¹</p> <p>Our View: 3Q18 was a beat mostly on better commodity price realizations and corporate costs. The 2019 outlook for better capital efficiency with FCF for a new stock buyback should be viewed favorably.</p> <p>3Q18 recurring EPS/CFPS of \$0.63/\$2.60 beat our estimates of \$0.46/\$2.39 and consensus of \$0.47/\$2.42. The outperformance was related to higher commodity price realizations and lower G&A costs, partially offset by production mix and high cash operating costs.</p> <p>3Q18 adjusted production for Egypt tax barrels and non-controlling interest of 401 Mboe/d (194 Mb/d oil) compares to our 401 Mboe/d (198 Mb/d) model and the 398 Mboe/d guidance.</p> <p>Capital spending of \$844 million was below our \$880 million estimate and consensus of \$850 million. Company guide was for spending was \$875 million.</p>

²²¹ RBC Capital Markets, "APA – 3Q18 Earnings Beat; Good 2019 Outlook," October 31, 2018, 6:55 PM.

Exhibit 12

Impact Date	Event
	<p>New Stock Repurchase Authorization Announced a new 40 million share repurchase authorization, equating to 10% of outstanding shares.</p> <p>2018 Guidance Update The upstream capital budget was increased to \$3.1 billion from \$2.9–3.0 billion.</p> <p>Adjusted production guidance was increased modestly to account for 3Q18 outperformance.</p> <p>4Q18 adjusted production guidance of 421 Mboe/d is in line with our 420 Mboe/d model.</p> <p>2019 Guidance Update Increased expectations for adjusted production to the high end of its current 410–440 Mboe/d guidance, which is consistent with our 444 Mboe/d model.</p> <p>Capital spending is expected at \$3.0 billion, below our \$3.55 billion estimate.</p> <p>RBC, in a later report, added that the Company’s “share weakness post 3Q18 is mostly related to investor concern over upstream spending” and “it could take a couple quarters of proof for the concern to subside”:²²²</p> <p>Our view: APA share weakness post 3Q18 is mostly related to investor concern over upstream spending. Management proactively addressed this with a \$3.0 billion framework but it could take a couple quarters of proof for the concern to subside.</p> <p>Key points: The 2019 activity plans are geared to more shareholder returns. Based on management comments, it seems the company is content to operate at the status quo for now and spend \$3.0 billion, consistent with 2018. This will allow APA to generate \$0.5-1.0 billion of FCF at strip prices. Spending in 2H18 is a bit “hot”, partially related to \$100 million of exploration acreage capture. Our model assumes 2019 upstream capital of \$3.225 billion and</p>

²²² RBC Capital Markets, “Apache Corporation, The Proof is in the Pudding,” November 2, 2018, 5:14 PM.

Exhibit 12

Impact Date	Event
	<p>\$1.0 billion of FCF generation, using our \$76/bbl (WTI) forecast. This produces a FCF yield of 8%, which is in the top quartile of the peer group. In our higher price environment, we expect more activity in Egypt and higher service cost inflation.</p> <p>The share repurchase authorization amounts to over 10% of APA's market cap. The company bought 0.9 million shares back in 3Q18 under a prior authorization. The new 40 million share authorization provides more fire power for the company to remain active. APA has capacity to buyback 1-2 million shares per quarter while maintaining a cash cushion. Asset sales are another source of buyback funding, such as APA's Mid-Continent position that could fetch \$1.1 billion (RBCCMe).</p> <p>Permian well costs are improving as APA learns and finds offsets. D&C costs at Alpine High are down 25% YoY and highlight savings from the transition to pad drilling. The response from increased proppant loading is positive and testing from the Blackfoot pad suggests the company can more efficiently recover reserves from the Woodford with fewer wells and larger completions, enhancing pad economics.</p> <p>Our EPS/ CFPS estimates increased due to stronger commodity price realizations and higher production in the North Sea. The birthing of Altus Midstream (ALTM) as its own public entity occurs in the next couple of weeks. APA will own 71% of the entity. We think APA provides some guidance on accounting/modeling shortly thereafter but importantly, capital spending for ALTM will be separate of APA. Results will still be consolidated for GAAP accounting purposes.</p> <p>Quick 3Q18 recap. Recurring EPS/CFPS of \$0.63/\$2.60 beat our estimates of \$0.46/\$2.39. The outperformance was related to higher commodity price realizations and lower G&A costs, partially offset by production mix and high cash operating costs. 3Q18 adjusted production of 401 Mboe/d (194 Mb/d oil) compares to our 401 Mboe/d (198 Mb/d) model. Capital spending of \$966 million (\$844 million upstream) was above our \$880 million model and company guide of \$875 million.</p>

Exhibit 12

Impact Date	Event
	<p>Scotia wrote that the Company’s adjusted EPS and EBITDAX were above its estimates and consensus while adjusted production was “within 1% of our estimate.” The analyst listed the “Cons” of Apache’s update as “higher near-term spend along with 4Q18 and 2019 production that appears merely in line with our expectations,” while the “Pros” were “lower spend rate projected in 2019 and an additional repurchase program in place.” Scotia commented that “[i]n the end, we view these as a wash”.²²³</p> <p>QUICK TAKE: From a quarterly earnings and EBITDAX standpoint, APA exceeded expectations. However, the adjusted and better clarified outlook is likely to be of more interest. APA has increased its 2018 upstream budget yet again, this time by another \$200 million to \$3.1 billion, although that is partially offset by \$150 million of lower midstream spending due to the creation of Altus Midstream to fund the Alpine High build out (\$3.45 billion total budget). Total production for the year is being increased by a non-material 1 MBoe/d, comprised of an increase of 2 MBoe/d in the Permian/U.S. and a decrease of 1 MBoe/d internationally.</p> <p>In 2019, production is expected to be at the upper end of the prior 410-440 MBoe/d guide (SHW 438 MBoe/d), with an upstream capital budget of ~\$3.0 billion, which translates into a lower quarterly run rate than recent quarters. This is expected to be funded within cash flow, inclusive of the dividend. In terms of repurchases, APA bought back 0.9 million shares in September and has approved an additional 40 million share repurchase authorization.</p> <p>Essentially, we are mixed on the update. Cons: higher near-term spend along with 4Q18 and 2019 production that appears merely in line with our expectations. Pros: lower spend rate projected in 2019 and an additional repurchase program in place. In the end, we view these as a wash and continue to favor other names in the space, but we will be watching 2019 closely.</p> <p>3Q18 Results: APA posted recurring EPS of \$0.63, above our estimate of \$0.55 and consensus of \$0.47. Adjusted EBITDAX was \$1.4 billion, exceeding SHW at \$1.24 billion and the Street</p>

²²³ Scotia Howard Weil, “Apache Corporation, 2019 is Looking More Favorable Than 2018; Execution is Critical,” November 1, 2018, 6:02 AM.

Exhibit 12

Impact Date	Event
	<p>at \$1.25 billion. Production for the quarter was 401 MBoe/d (after eliminating Egypt tax barrels and non-controlling interests), which is within 1% of our estimate.</p> <p>Permian Driving Operations: Production in the Permian was slightly higher than estimated for the quarter, and APA continues to actively drill its Midland and Delaware core areas, including the Alpine High. In our opinion, the standout for the quarter was a handful of the Midland wells - APA highlighted three wells with an average 30-day IP rate of 1,559 Boe/d (76% oil). Select wells in the Delaware and Alpine High continue to perform at or above our expectations as well.</p> <p>Seaport wrote that the Company reported a “net negative release” as EBITDA and production topped consensus but capex was “+15% vs. consensus.” The analyst commented that “APA’s capex track record this year, ... includes two budget raises and three capex misses” and “investors may question” the “viability” of 2019 production guidance that requires reduced quarterly capex spending vs. 3Q18. Seaport “note[d] APA did not provide specific 2019 commodity mix guidance”.²²⁴</p> <p>A net negative release, in our opinion. APA posted strong Q3 EBITDA (+9% vs. Street) and a modest production beat (total/oil volumes +2%/+1% vs. consensus), but on Q3 capex +15% vs. consensus. Additionally, APA raised FY18 E&P capex to ~\$3.1B (~ \$2.9B previously) with Q4 spend of ~\$800MM, implying a ~\$100MM increase. For 2019, APA estimates that adjusted production will be towards the high end of prior 410-440 Mboepd guidance on a \$3.0B E&P budget. We think investors may question this program’s viability considering: (1) 2019’s budget implies a quarterly spend of ~\$750MM, a significant - 11% decrease vs. Q3 despite it holding 2019 activity flat; and (2) APA’s capex track record this year, which includes two budget raises and three capex misses – and this while previously making the same argument as it now, that E&P quarterly capex is on the decline.</p> <p>Highlights What we liked: Solid Q3 EBITDA beat and decent volumes. Q3 EBITDA of \$1,367MM came in +9% vs. consensus (+7% vs. SGS) while production also fared slightly better vs. expectations with 476</p>

²²⁴ Seaport Global, “Apache Corp., Q3 First Look: Capex... so hot right now,” November 1, 2018.

Exhibit 12

Impact Date	Event
	<p>Mboepd total volumes (+2% vs. Street; ~in-line with SGS) and 243 Mbpd oil production (+1% vs. Street/+3% vs. SGS). In addition to higher oil volumes, the primary driver of the EBITDA beat vs. our model was higher NGL realizations of \$31.42/bbl (SGS \$28.50).</p> <p>2019 production outlook revised higher. APA now expects 2019 production levels to be at the high end of its previously announced 410-440 Mboepd guidance. We expect the company to attribute its higher production outlook to general operational efficiencies, such as longer lateral development, enhanced completion techniques and facility expansions.</p> <p>Buybacks announced. APA repurchased shares under a legacy authorization of which 7.8MM shares remained. Furthermore, the board recently approved an additional 40MM share authorization.</p> <p>What we didn't like:</p> <p>Hot Q3 and Q4 capex. As we highlighted the potential for with our 10/17 preview note Q3 capex came in hot at \$966MM (\$844MM E&P and \$122MM midstream), +10% vs. APA's \$875MM guidance (+15% vs. consensus). APA chalked this up to lease acquisitions/extensions and a heavier weighting of 2H:18 E&P capital in Q3 vs. Q4. To that end, APA expects Q4 E&P capex to be ~\$800MM, representing a \$44MM reduction from Q3 levels. We note consensus capex estimates are difficult to comp beginning in Q4:18 and beyond as APA is slated to close the IPO of its midstream subsidiary, Altus. In this regard, the consensus average appears to contain several lofty outliers, which include midstream capex, and are therefore not apples to apples vs. APA's E&P capex guidance.</p> <p>More clarity needed on 2019's outlook. APA envisions a preliminary 2019 outlook of 410-440 Mboepd production from a \$3.0B E & P capital program, predicated on the company maintaining current activity levels which implies a \$750MM quarterly run-rate. By contrast, this compares to our estimates of ~440 Mboepd (~in line with APA estimates) from \$3.47B capex (+12% vs. APAe); Street forecasts are difficult to comp as they appear to contain consolidated estimates. APA makes the case Q4:18 capex is higher than its projected quarterly 2019 spend due to an</p>

Exhibit 12

Impact Date	Event
	<p>expected ~\$65MM of Q4 lease acquisitions/renewals. Furthermore, we note APA did not provide specific 2019 commodity mix guidance.</p> <p>Societe Generale wrote that the Company's adjusted EPS and DCFPS beat its estimates and consensus. The analyst remarked that "[t]he Street remains concerned about the APA Alpine High project adding natural gas." The analyst noted that Apache was "increasing 4Q production growth and looking to be at the high end of its 440 MBOE/d next year".²²⁵</p> <p>3Q18 Adjusted EPS/DCFPS (discretionary cash flow per share after common stock dividend) of \$0.63/\$2.34 were better than SGe of \$0.48/\$2.07 and the Street's \$0.48/\$2.24. Reported 3Q18 EPS of \$0.21 included debt extinguishment, asset impairments and valuation allowances and other charges. Net BOE output of 400.6 MBOE/d (48% oil) was +3% QOQ, primarily from growth in NGL and natural gas output related to Permian E&D activity, and oil output declined. As noted in the release, YOY Permian oil output increased materially. On a commodity price basis, APA's QOQ global oil realizations were flat, even with widening Permian differentials that were offset by strong Brent, while natural gas prices were +2% and ngl's +17.9%. Unit cost controls were good. The net result of all the above is that APA's bottom line results were much improved, with adjusted EPS + 26%, cash flow +7% and adjusted EBITDAX +7.8%. The Street remains concerned about the APA Alpine High project adding natural gas, but it needs to look at the numbers.</p> <p>During 3Q18, APA spent \$966MM vs \$1 billion in operating cash flow, inclusive of the midstream. In 4Q, capex will be \$800MM, some 17% lower. Next year, APA plans to spend \$3 billion upstream, and will no longer have Alpine High midstream costs, given the Altus midstream close this month. APA is guiding towards 440 MBOE/d of net output, +11% vs 2018. During the quarter, APA extended its debt maturities. At quarter's end, APA had LTD/Book Cap of 51%, with \$593MM in cash. Going forward, APA has no 2019 oil puts but did add some basis swaps for oil and natural gas appeared static. For 2019, production flow and</p>

²²⁵ Societe Generale, "Apache Corp, Continuing to deliver volume based cash flow and adj. EPS growth; 2019 capex 3% lower but output +11%," November 1, 2018, 12:52 PM.

Exhibit 12

Impact Date	Event
	<p>price risk is, in our view, comparable with 2018. So, even though APA is growing output, it isn't increasing price or throughput based program 'delivery risk'.</p> <p>Lastly, APA's board approved an incremental 40MM share repurchase program to the existing 7.8MM program that represents 12.4% of shares outstanding. During 3Q18, APA repurchased 924,000 shares.</p> <p>SG view YTD, APA generated return on invested capital of 23% and it is increasing 4Q production growth and looking to be at the high end of its 440 MBOE/d next year. This production growth is coming at a very measured program, both in US unconventional and international conventional, such as the UK North Sea Gatten play. In the Permian, initial multiwell pad developments sounded very encouraging, which are just starting to clean up in the Wolfcamp with 40 degree oil.</p> <p>The Altus midstream transaction should close this month, which means that APA won't have large midstream expenditures next year; annualized AH midstream costs were set to be c.\$500MM. With three more natural gas plants, and higher ngl pricing, and assuming static oil and gas pricing, APA will be in a position to generate free cash flow for its common stock buybacks or dividend increases. Further, it might sell other midcontinent assets that have been in the news. Our bottom line is that APA has been steadfast in its business model, which the Street has dismissed, even though it didn't cut its dividends in the downturn and despite the fact that it has delivered better fiscal results.</p> <p>Stephens wrote that the Company's EBITDAX was better than its estimates and consensus, while production "was ~1% below our expectation, though exceeded the street by ~2%." The analyst noted that the Company's third-quarter capex was "higher than our estimate," while fourth-quarter capex guidance was "tracking our forecast normalized for leasehold expenditure." Stephens "believe[d] the [Company's] stronger cash margins, production</p>

Exhibit 12

Impact Date	Event
	<p>beat vs consensus and resumption of its share buyback program outweigh the higher-than-anticipated 3Q/18 capex”:²²⁶</p> <p>INVESTMENT CONCLUSION: APA reported 3Q/18 adjusted EBITDAX of ~\$1,367 mil., beating our ~\$1,296 mil. estimate/consensus of ~\$1,249 mil. Production of ~476 Mboepd (~51% oil), was ~1% below our expectation, though exceeded the street by ~2%. Cash margins exceeded our estimate by 5%+ predominately driven by stronger price realizations (notably Permian NGL prices realizations were ~47%, up from ~40% in 20/18). Upstream capital of ~\$844 mil. (includes \$48 mil. for incremental leasehold acquisition/retention) was ~\$60 mil. higher than our estimate (4Q/18 capex guide of ~\$800 mil. is tracking our forecast normalized for leasehold expenditures). We believe the stronger cash margins, production beat vs consensus and resumption of its share buyback program outweigh the higher-than-anticipated 3Q/18 capex. Our estimates and target price are under review.</p> <p>KEY POINTS: Guidance Update - Raised '18 production guide fractionally to ~469 Mboepd (tracking our & consensus numbers). In '19, APA expects to spend \$3 bil. & anticipates volumes towards the high end of previously announced guide (410-440 Mboepd) vs. our \$3.2 billion and '19 adj. volume outlook of ~460 Mboepd.</p> <p>Positives - 1). Resumption of share buyback program and an additional share repurchase authorization of 40 mil. shares. 2). Cash margins 5%+ better than our expectations. 3). Production exceeded consensus estimates by ~2%. 4). 4Q/18 Alpine volume guide (~68 Mboepd) tracking our estimates. 5). 4Q/18 Permian oil guide ~2% higher than our current estimates. 6). Strong Permian NGL price realizations (prices realizations were ~47%, up from ~40% in 20/18).</p> <p>Negatives - 1). Adjusted for leasehold expenditures 3Q/18 capex was ~\$60 mil. higher than our estimates (though 4Q/18 capex guide tracking our forecast). 2). '19 production guide is ~3% below our forecast normalizing for capex.</p>

²²⁶ Stephens, “Apache Corporation, First Look: Stronger-Than-Expected Cash Margins; Share Repurchase Program,” November 1, 2018.

Exhibit 12

Impact Date	Event
	<p>Stephens, in a later report, lowered its price target to \$52 from \$55 “driven by a ~3% decrease in our ’19 capex forecast, a ~1.5% reduction in our ’19 volume outlook, higher cash taxes and G,P,&T expense partly offset by an increase in our ’19 price realizations and lower LOE.” The analyst also “lower[ed] our 4Q/18 production forecast by ~1%”.²²⁷</p> <p>INVESTMENT CONCLUSION: We are lowering our target \$3 to \$52 per share driven by a ~3% decrease in our ’19 capex forecast, a ~1.5% reduction in our ’19 volume outlook, higher cash taxes and G,P,&T expense partly offset by an increase in our ’19 price realizations and lower LOE. Over the last month, APA has underperformed the XOP by ~7% predominately driven by yesterday’s weakness (underperformed XOP by ~6%), despite a solid quarterly earnings report (see below bullet). We believe several tailwinds are on the horizon (emerging FCF story, returning value to shareholders, Alpine High liquids growth & Altus market value recognition) which should drive share appreciation. Excluding Egyptian cash taxes, we estimate APA trades at ~5x ’19 EV/EBITDA below the group mean of ~5.8x. Reiterate OW rating.</p> <p>KEY POINTS:</p> <p>1). Revising Estimates – We decreased our ’18/’19 volumes outlook by ~1%/~1.5% to ~469.4 Mboepd/~526.8 Mboepd driven by slightly lower 3Q/18 volumes/~3% reduction in our ’19 capex outlook. Our ’18/’19 EBITDAX estimates increased to \$5,097 mil./\$5,435 mil. up from \$4,964 mil./\$5,152 mil. driven by higher cash taxes, improved ’19 price realizations, and lower LOE offset by higher G,P,&T expense. See the grid to the left for additional information.</p> <p>2). 3Q/18 Earnings Recap – APA reported 3Q/18 adjusted EBITDAX of ~\$1,367 mil., beating our ~\$1,296 mil. estimate/consensus of ~ \$1,249 mil. Production of ~476 Mboepd (~51% oil), was ~1% below our expectation, though exceeded the street by ~2%. Cash margins exceeded our estimate by 5%+ predominately driven by stronger price realizations (notably Permian NGL prices realizations were ~47%, up from ~40% in 2Q/18). Upstream capital of ~\$844 mil. (includes \$48 mil. for incremental leasehold acquisition/retention) was ~\$60 mil. higher than our</p>

²²⁷ Stephens, “Apache Corporation, Decreasing Target, Company Focused on Returning Value to Shareholders,” November 2, 2018.

Exhibit 12

Impact Date	Event
	<p>estimate (4Q/18 capex guide of ~\$800 mil. is tracking our forecast normalized for leasehold expenditures).</p> <p>3). Updating our Production Outlook – We are lowering our 4Q/18 production forecast by ~1% to ~496.3 Mboepd, slightly above company guide (consensus modeling ~495.6 Mboepd). Notably, our Alpine High estimate of ~67.9 Mboepd is relatively unchanged, while our Permian oil volume forecast increased ~1% to ~95 Mboepd. In '19, we are modeling the company spends \$3+ bil, down from ~\$3.2 bil. previously, and anticipate volumes of ~526.8 Mboepd (2%+ above the high end of company guide/~1.5% above consensus).</p> <p>UBS “expect[ed] a mixed reaction to the quarter following 3Q results” as “[p]ositives included earnings and cash flow better than expected, 2019 guidance at top end, and APA resuming their buyback program,” while “offsets include upstream capex guidance rising again (~ \$200mn), well data in Alpine High remaining gassy ..., and production growth / mix being gas oriented.” The analyst noted that the Company’s EPS, CFPS, EBITDAX, and total production were better than consensus “driven by lighter SG&A, stronger NGL pricing, and stronger volumes”:²²⁸</p> <p>Our Take – Mixed We expect a mixed reaction to the quarter following 3Q results. Positives included earnings and cash flow better than expected, 2019 guidance at top end, and APA resuming their buyback program (resulting in 924k shares being repurchased in 3Q, and an additional repurchase authorization of 40mn shares). The offsets include upstream capex guidance rising again (~ \$200mn), well data in Alpine High remaining gassy (although oil test early-2019), and production growth / mix being gas oriented.</p> <p>3Q18 Results APA reported 3Q18 results that were better than expected, with EPS / CFPS / EBITDAX coming in at \$0.63 / \$2.61 / \$1,367mn vs. consensus of \$0.47 / \$2.45 / \$1,237mn and UBSe of \$0.66 / \$2.39 / \$1,321mn. Results for the quarter were driven by lighter SG&A, stronger NGL pricing,</p>

²²⁸ UBS, “Apache Corporation, Beat in Quarter; Production Mix, Capex Focus,” November 1, 2018.

Exhibit 12

Impact Date	Event
	<p>and stronger volumes, which were offset by weaker than expected nat gas pricing and high LOE / GP&T. Total production for the quarter averaged 476mboepd slightly better than consensus / UBSe of 472 / 472mboepd, with oil production averaging 243mbpd compared to consensus / UBSe of 242 / 242mbpd. CapEx of \$872mn was above consensus estimates of \$856.3mn</p> <p>Operational Update / Updated Guidance In the Permian, APA averaged 18 rigs and five frac crews while drilling and completing 47 gross operated wells, which helped Permian production grow to 222mboepd, a 38% increase in total production, and 16% increase in oil production YoY. A rig was added in the Midland in order to optimize its rig-to-frac crew ratio, which should support growth in 4Q and beyond. Apache's capital spend is anticipated to be ~\$800mn in 4Q, with FY18 CapEx of \$3.1bn; 2019 upstream capital spending was guided to \$3bn. Consequently, APA expects 2019 production will fall at the high end of their previously announced guidance of 410-440mboepd with FY18 US production guidance increased to 262mboepd. The gas/oil mix is key here. The Altus Midstream transaction is expected to close in Nov. 2018.</p> <p>Valuation: Call at 11am ET – Dial In: (855) 859-2056; Passcode: 4354928. Conference call will likely focus on: (1) Permian production, (2) Altus Midstream / Alpine High, (3) Capital budget, and (4) Share repurchases.</p> <p>Wolfe wrote that “APA delivered a solid operational 3Q” as EBITDA was “slightly above” consensus, total production was “in line with the street,” and “growth [was] set to re-accelerate exiting 2018.” However, the analyst commented that the Company’s “offsets were capex moving higher and a slight miss at Alpine High, but we did like the restart of the share repurchase program.” The analyst “remain[ed] underweight [on Apache] as the main driver of corporate growth is Permian natural gas”.²²⁹</p> <p>Repurchases Back On, Alpine High Slight Miss. With the midstream transaction previously announced, the focus turned back to operations and APA delivered a solid operational 3Q, again exceeding its U.S. production forecast, with growth set to re-accelerate exiting 2018. The offsets</p>

²²⁹ Wolfe Research, “Apache Corp., Joining The Share Repurchase Club,” October 31, 2018.

Exhibit 12

Impact Date	Event
	<p>were capex moving higher and a slight miss at Alpine High, but we did like the restart of the share repurchase program. The asset base and financial outlook are improving, but we remain underweight as the main driver of corporate growth is Permian natural gas while we see better value in other lower multiple large caps.</p> <p>Results. 3Q18 EBITDA of \$1.37Bn was slightly above WR \$1.36Bn and Street \$1.25Bn. 3Q total production of 476mboepd was in line with the street and slightly above WR estimate of 474mboepd. 3Q18 total capex of \$922mm was above guidance of \$875mm and the street \$850mm</p> <p>Share Buybacks Resume. APA resumed its repurchase program, purchasing 0.9mm shares in 3Q under the current 7.5mm authorization, and announced the approval of an additional 40mm shares for the program, though we didn't see any timing around completion.</p> <p>2018 Updates/2019 Outlook. APA increased its production guidance by 2% to 401mboepd along with a \$50mm bump in the FY18 budget to \$3.45Bn. APA reiterated its forecast of \$3bn in capex in 2019, but now expects production to be at the high end of the previously announced guidance of 410-440mboepd (15% US growth & 10% overall growth).</p> <p>Alpine High. Alpine High volumes grew 52% Q/Q, slightly below the forecast of 55+% in 3Q18, completing 23 gross operated wells in the quarter and FY18 guidance ticked down 1mboepd. Additionally, APA shows Permian natural gas and oil will be roughly 60% exposed to both WAHA/El Paso and Midland pricing, respectively.</p> <p>Following the Company's disclosures on October 31, 2018 and November 1, 2018, according to Bloomberg, the average of analysts' price targets for Apache stock decreased to \$49.98 from \$50.29, or -0.61%. Of the 28 analysts who published investment ratings for the Company both before and after the earnings announcement, one upgraded its rating. (See Exhibit 5C.)</p>

Exhibit 12

Impact Date	Event
	Remark: Given that: (i) the Company’s “3Q EPS/EBITDX/production beat” consensus; ²³⁰ (ii) analysts “expect[ed] investors to focus on the pace of ‘oil mix dilution’ through 2019”; ²³¹ and (iii) the Company’s “share weakness post 3Q18 is mostly related to investor concern over upstream spending,” ²³² the statistically significant Company-specific stock price decline on November 1, 2018 is consistent with that expected in an efficient market.
2/28/2019	After market close on Wednesday, February 27, 2019, the Company announced its fourth-quarter and year-end 2018 financial results. For the quarter, Apache reported production of 482 mboe/d, revenue of \$1.70 billion, an EPS loss of -\$1.00, and adjusted EPS of \$0.31. ²³³ Apache had released preliminary fourth-quarter production results, and 2019 capex and production guidance after the close of trading on February 7, 2019. ^{234, 235}

²³⁰ Credit Suisse, “Apache Corporation, 3Q Beats; Solid 2019 Guidance & Jump Starts Share Repurchase Program,” November 1, 2018. *See also, e.g.*, BMO Capital Markets, “Apache, 3Q Beats on Oil Realizations, Volumes in Line on Higher Capex,” October 31, 2018, 10:51 PM; Scotia Howard Weil, “Apache Corporation, 2019 is Looking More Favorable Than 2018; Execution is Critical,” November 1, 2018, 6:02 AM; UBS, “Apache Corporation, Beat in Quarter; Production Mix, Capex Focus,” November 1, 2018.

²³¹ Simmons Energy, A Division of Piper Jaffray, “Apache Corporation, Q3’18 Quick Look: More Questions Than Answers,” November 1, 2018, 3:34 AM. *See also, e.g.*, NatAlliance, “Apache Corporation, 2018 Production Up 0.2% On 6% CapEx Bump; 2019 Production Guidance Raised By 2%,” November 1, 2018; Societe Generale, “Apache Corp, Continuing to deliver volume based cash flow and adj. EPS growth; 2019 capex 3% lower but output +11%,” November 1, 2018, 12:52 PM; UBS, “Apache Corporation, Beat in Quarter; Production Mix, Capex Focus,” November 1, 2018; Wolfe Research, “Apache Corp., Joining The Share Repurchase Club,” October 31, 2018.

²³² RBC Capital Markets, “Apache Corporation, The Proof is in the Pudding,” November 2, 2018, 5:14 PM. *See also, e.g.*, JP Morgan, “Apache Corp, 3Q18 Flash: Upside Results; Expecting In-Line 2019 Volumes at Lower Capex; Stock Reaction-Positive - ALERT,” October 31, 2018, 9:02 PM; Simmons Energy, A Division of Piper Jaffray, “Apache Corporation, Q3’18 Quick Look: More Questions Than Answers,” November 1, 2018, 3:34 AM; Seaport Global, “Apache Corp., Q3 First Look: Capex... so hot right now,” November 1, 2018.

²³³ Apache News Release, “Apache Corporation Announces Fourth-Quarter and Full-Year 2018 Financial and Operational Results,” February 27, 2019. *See also GlobeNewswire*, “Apache Corporation Announces Fourth-Quarter and Full-Year 2018 Financial and Operational Results,” February 27, 2019, 5:31 PM.

²³⁴ *Globe Newswire*, “Apache Announces 2019 Capital Budget and Production Outlook,” February 7, 2019, 5:24 PM.

²³⁵ On February 8, 2019, there was a statistically insignificant Company-specific stock price change.

Exhibit 12

Impact Date	Event																
	<p>The consensus estimates of the Company's revenue and adjusted EPS were \$1.77 billion and \$0.24, respectively.²³⁶</p> <p>John J. Christmann IV, Apache's chief executive officer and president, commented on the Company's results:²³⁷</p> <p>2018 was a year of strong returns, robust growth and excellent financial performance. Total adjusted production increased 13 percent, and we significantly exceeded our corporate cash return on invested capital (CROIC) target of 18 percent.</p> <p>In the Permian, strong execution and well performance drove an 18 percent increase in oil production, and we achieved an important strategic goal with the formation of Altus Midstream Company, which will fund the growing infrastructure needs of Alpine High. On the international front, we increased production in the North Sea to its highest level in two years, and we laid a foundation for long-term potential production growth with the addition of significant acreage and progress on our extensive 3D-seismic program in Egypt.</p> <p>The Company also provided fiscal year 2019 guidance and provided first quarter 2019 guidance, as follows:²³⁸</p> <table> <tr> <th colspan="2">2019 Guidance</th></tr> <tr> <th>Daily Production (mboe/d)</th><th>New Guidance</th></tr> <tr> <td>United States</td><td>295 - 305</td></tr> <tr> <td>International</td><td>190 - 200</td></tr> <tr> <td>Reported Production</td><td>485 - 505</td></tr> <tr> <td>Less: Egypt Tax Barrels</td><td>25 - 28</td></tr> <tr> <td>Less: Egypt Noncontrolling Interest</td><td>35 - 37</td></tr> <tr> <td>Total Adjusted Production</td><td>425 - 440</td></tr> </table>	2019 Guidance		Daily Production (mboe/d)	New Guidance	United States	295 - 305	International	190 - 200	Reported Production	485 - 505	Less: Egypt Tax Barrels	25 - 28	Less: Egypt Noncontrolling Interest	35 - 37	Total Adjusted Production	425 - 440
2019 Guidance																	
Daily Production (mboe/d)	New Guidance																
United States	295 - 305																
International	190 - 200																
Reported Production	485 - 505																
Less: Egypt Tax Barrels	25 - 28																
Less: Egypt Noncontrolling Interest	35 - 37																
Total Adjusted Production	425 - 440																

²³⁶ Reuters, "BRIEF-Apache Corp Reports Fourth Quarter Results," February 27, 2019, 5:38 PM.

²³⁷ Apache News Release, "Apache Corporation Announces Fourth-Quarter and Full-Year 2018 Financial and Operational Results," February 27, 2019.

²³⁸ Apache News Release, "Apache, Fourth-Quarter 2018, Financial and Operational Supplement," February 27, 2019.

Exhibit 12

Impact Date	Event
	Alpine High 85 - 90
	<u>Estimated Product Mix: Oil/NGLs/Natural Gas</u>
	United States 37% / 25% / 38%
	International (adjusted) 70% / 2% / 28%
	<u>Capital Guidance (billions)</u>
	United States 75%
	International 25%
	Upstream Total \$2.4
	<u>Income Statement Items</u>
	Lease Operating Expenses (per boe) \$7.50 - \$7.75
	Gathering, Transmission, Processing (millions) \$400
	DD&A (per boe) \$14.25
	Cash Exploration Costs (million) \$85 - \$95
	General and Administrative Expenses (millions) \$450
	Financing Costs (millions) \$400
	Cash Taxes (millions) \$200
	<u>Quarterly Guidance</u> <u>1Q 2019 Guidance</u>
	Production (mboe/d)
	United States 287
	International (Adjusted) 138
	Total Adjusted Production 425
	Alpine High 70
	Upstream Capital Investments (millions) \$625
	Upstream Lease Operating Expenses (per boe) \$7.75

Exhibit 12

Impact Date	Event								
	<table> <tr> <td>Gathering, Transmission, Processing (millions)</td><td>\$100</td></tr> <tr> <td>Cash Exploration Costs (millions)</td><td>\$30</td></tr> <tr> <td>General and Administrative Expenses (millions)</td><td>\$120</td></tr> <tr> <td>Cash Taxes (millions)</td><td>\$70</td></tr> </table> <p>Christmann commented on the Company's guidance:²³⁹</p> <p>Our projected 2019 exit rates underscore Apache's ability to deliver attractive and sustainable growth on a reduced activity set. This is made possible by our diverse, high-quality portfolio, relatively low base production decline rate in the mid 20 percent range, and excellent execution by our regions.</p> <p>Looking forward through 2021, we expect to spend between \$2.5 to \$2.8 billion per year, assuming \$50 to \$55 WTI. This investment level will deliver continued, attractive growth while enabling Apache to achieve cash-flow neutrality. We intend to return to investors at least 50 percent of cash flow in excess of plan, inclusive of asset sale proceeds, before increasing planned activity levels. This disciplined approach is capable of delivering long-term returns and growth and is supported by a deep inventory of development locations and exciting exploration opportunities in the U.S. and internationally</p> <p>The Company held a conference call with investment analysts the following morning. During the call, Christmann said the Company was "decreasing our activity this year to Alpine High to 5 rigs and 1 frac crew. We are deemphasizing dry gas drilling, which will no longer be needed for blending purposes to meet pipeline specs following cryo processing installation. This will naturally result in lower volume growth than previously projected, but will increase our percentage of NGLs."²⁴⁰</p>	Gathering, Transmission, Processing (millions)	\$100	Cash Exploration Costs (millions)	\$30	General and Administrative Expenses (millions)	\$120	Cash Taxes (millions)	\$70
Gathering, Transmission, Processing (millions)	\$100								
Cash Exploration Costs (millions)	\$30								
General and Administrative Expenses (millions)	\$120								
Cash Taxes (millions)	\$70								

²³⁹ Apache News Release, "Apache Corporation Announces Fourth-Quarter and Full-Year 2018 Financial and Operational Results," February 27, 2019.

²⁴⁰ Thomson Reuters, *StreetEvents*, "APA – Q4 2018 Apache Corp Earnings Call, EVENT DATE/TIME: FEBRUARY 28, 2019 / 4:00PM GMT," February 28, 2019, 11:00 AM.

Exhibit 12

Impact Date	Event
	<p>Bank of America Merrill Lynch wrote that the Company’s adjusted EPS and CFPS beat consensus as Apache had “overall a solid operating quarter - with management also adjusted its annual 2019 production range higher ... [than] just three weeks ago.” The analyst commented that “[n]ew from the release is a spending outlook through 2021 ... [while] reiterating its prior commitment to return at least 50% of cash flow above its base plan to shareholders”:²⁴¹</p> <p>Solid quarter with strong Permian & North Sea oil growth Adj EPS / CFPS of \$0.31 / \$2.25 beat consensus of \$0.24 / \$2.07(BofA \$0.22 / \$2.34) on what looks like a mix of Egypt and North Sea. Egyptian net oil volumes came in lower, but offset by lower tax barrels versus guidance given just two weeks ago and a \$42mm valuation allowance. Overall production at 421,000 boepd was in-line with guidance, but with the recent start up from Garten, and Permian oil of 98 Mbbl /d coming in ahead of guidance (95 Mbbl /d), overall a solid operating quarter - with management also adjusted its annual 2019 production range higher to a range to 425-440 Mboe/d vs 410-440 Mboe/d given just three weeks ago. Planned spending of \$2.4bn is reaffirmed with expected 4Q18 to 4Q19 growth rates unchanged from prior guidance levels of 6% - 10%, 12% - 16% for US and 5% for Permian oil (equivalent to 5,000 boepd). Note this is the first quarter that Altus midstream (ALTM) is consolidated (APA interest 71%).</p> <p>Outlines multi-year spending ~10% above 2019 levels New from the release is a spending outlook through 2021 where it expects capex of ~\$2.5 - \$2.8bn per year, assuming \$50 to \$55 WTI - and reiterating its prior commitment to return at least 50% of cash flow above its base plan to shareholders. It has not yet provided any parameters on the production - look for color on tomorrow’s call. However, assuming the low end of the capex range our preliminary estimates suggest total average corporate growth around 6% per year for 2020 and 2021.</p> <p>PO unchanged at \$33; gas growth remains a headwind</p>

²⁴¹ Bank of America Merrill Lynch, “Apache Corp, 4Q18 earnings recap: headline beat on Egypt tax; outlook still anchored on gas,” February 28, 2019, 6:30 AM.

Exhibit 12

Impact Date	Event
	<p>APA's medium term capital guidance puts management in the shareholder friendly bucket as it relates to its commitment to return cash to shareholders at elevated oil prices. However, beyond the benefit of recent start up in the NSea, guidance for 2019 confirms the gradual shift in incremental production mix from here towards a greater share of US natural gas led by the Alpine High - and despite expectations of multiple cryo plant start-ups in 2H19 that will lift the liquid component of production. The net is that APA's growth in our view, will remain gas led rendering a call on the investment outlook still, predominantly a view on the relative outlook for oil vs gas - and the risk that incremental growth could dilute cash flow per barrel. Underperform.</p> <p>Barclays wrote that the Company reported a “miss” on CFPS and capex while total production and EBITDAX were “in line with guidance.” The analyst noted that Apache “investors were acutely focused on Q4’18 production ... and mgmt. rolled forward the Q4’19/Q4’18 Permian oil growth forecast off of the 5% beat.” Barclays commented that “[w]hile the level of disclosure on 2020 and 2021 was limited ..., the broader messaging is clear: over the next three years APA plans to budget at \$50-55 WTI, anticipates moderate capex, is committed to cash flow neutrality at this price level, and will return at least 50% of excess free cash flow before increasing planned activity if we see higher oil prices”:²⁴²</p> <p>APA reported a 4% Q4’18 CFPS miss and a 3% Q4’18 capex miss. Heading into the print, investors were acutely focused on Q4’18 production given that 2019 production forecast is based on Q4/Q4 percent growth. Permian oil production of 99 MBO/d beat guidance of 95 MBO/d and mgmt. rolled forward the Q4’19/Q4’18 Permian oil growth forecast off of the 5% beat. APA already pre-released the 2019 outlook. As anticipated, APA provided updated commentary on 2020 and new commentary on 2021. While the level of disclosure on 2020 and 2021 was limited (capex but no production, see bullets below), the broader messaging is clear: over the next three years APA plans to budget at \$50-55 WTI, anticipates moderate capex, is committed to cash flow neutrality at this price level, and will return at least 50% of excess free cash flow before increasing planned activity if we see higher oil prices. While mgmt.’s messaging is positive, we</p>

²⁴² Barclays, “Apache Corporation, Q4’18 CFPS Miss; Positive Capital Discipline Messaging But Questions Remain on Alpine High Growth,” February 28, 2019, 8:06 AM.

Exhibit 12

Impact Date	Event
	<p>think the most attractive E&Ps strike a balance between FCF yield (after dividend) and production growth. While APA has a sizable dividend, it fails to generate a competitive FCF yield/growth profile over the medium term. We look forward to mgmt. commentary on the call regarding the growth potential and capex allocation for Alpine High in the medium-term vs. APA's other areas, especially since Altus (APA's GP&T provider in Alpine High; stock covered by Christopher Tillett) is decreasing its planned gathering & processing capital by ~\$400mm over the next three years, APA's oil-weighted FCF opportunities within a moderate capex outlook, and potential increased exploration spend. Reiterate Underweight rating.</p> <p>Q4'18 CFPS Misses APA reported Q4'18 CFPS/EBITDAX of \$2.25/\$1,143mm or 4% below/in line vs. Street Consensus. Total production of 421 MBOE/d was in line with guidance, although US volumes missed on gas/NGLs in the Permian (partially facilities related) while international beat due to strong North Sea production. Cash operating costs were in line or better than the guidance.</p> <p>Q4'18 Capex Slightly Misses, 2019 Capex Starting Off Ratable Q4'18 capex of \$823mm was 3% above guidance of \$800mm due to a variety of factors, including completions timing, leasehold and other Permian-related items. However, mgmt.'s Q1'19 capex forecast of \$625mm is 15% below Street Consensus of \$737mm (although this looks high relative to the Feb. 7th 2019 outlook release that called for \$2.4bn for FY'19) but is relatively in line with the implied 2019 quarterly run rate of \$600mm. Mgmt. expects Q1'19 total production will grow 1% sequentially, with the Alpine High staying flat relative to the YE'18 exit rate of 70 MBOE/d.</p> <p>2019 Production Raised, Capex Unchanged Based on YTD performance, APA now anticipates 2019 adjusted production of 425-440 MBOE/d vs. on Feb. 7th mgmt. anticipated production 'to trend to the midpoint of previously disclosed guidance range of 410-440 MBOE/d.' The new guidance range is 0-3.5% higher than previously. APA maintained the 2019 capex budget at \$2.4bn.</p> <p>2020/2021 Capex Released, Messages Moderate Activity and Discipline</p>

Exhibit 12

Impact Date	Event
	<p>Assuming \$50-55 WTI, APA forecasts \$2.5-2.8bn in capex per year in 2020 and 2021, which mgmt. indicates will yield both production growth and cash flow neutrality. Similar to this year, mgmt. also plans to return to shareholders at least 50% of cash flow in excess of plan, including asset sale proceeds, before increasing planned activity levels.</p> <p>No 2020/2021 Production Released</p> <p>Assuming the annual 2020/2021 capex forecast of \$2.5-2.8bn is all upstream capex, this brings total 2018-2020 capex spend to ~\$8,150mm (midpoint) vs. 2018-2020 forecast of ~\$7.5bn from Feb. 2018. The Feb. 2018 forecast, which most recently appeared in the November 2018 presentation, also provided 2019 and 2020 total production guidance. Although the current 2019 total company guidance of 425-440 MBOE/d is better than the Feb. 2018 guide of 410-440 MBOE/d, we do not think that mgmt. will maintain the 2020 forecast. We think 2020 production is likely biased lower given mgmt.'s messaging of more modest activity to match a more modest oil price environment. Also, see the next bullet on Altus. We look forward to commentary on the call.</p> <p>BMO “view[ed] the update as mostly neutral” as “Apache’s 4Q18 earnings [were] mostly in line with strong Permian/ North Sea oil production offset by higher capex, while realizations were preannounced, resulting in EPS/EBITDAX near consensus estimates.” The analyst commented that the Company’s “[p]roduction guidance for 2019 is in line with consensus, while oil appears slightly lower” and “2020-21 capital, FCF, growth commentary is likely too vague to get credit”.²⁴³</p> <p>Bottom Line: We view Apache’s 4Q18 earnings as mostly in line with strong Permian/ North Sea oil production offset by higher capex, while realizations were preannounced, resulting in EPS/EBITDAX near consensus estimates. Production guidance for 2019 is in line with consensus, while oil appears slightly lower. 2020-21 capital, FCF, growth commentary is likely too vague to get credit, while we think it could be difficult to achieved at \$50-55Bbl WTI. Net, net we view the update as mostly neutral.</p>

²⁴³ BMO Capital Markets, “Apache, 4Q Oil Better, but on Higher Capex; 2019 Production in Line,” February 27, 2019, 7:34 PM.

Exhibit 12

Impact Date	Event
	<p>Key Points 4Q18 oil beat offset by higher capex. Apache reported 4Q18 EPS of \$0.31, above consensus \$0.24 and our -\$0.03. EBITDAX of \$1,112mm, was below consensus \$1,135mm, but above our \$1,064mm. Production of 482MBOED compared to our/ consensus 478/488MBOED, while oil of 249MBOD exceeded Street by 3MBOD, as Permian (99MBOD) beat guidance (95MBOD) and North Sea delivered strong 25% q/ q growth (Garten/Callater/3Q turnaround). Alpine High (58MBOED) missed guidance (68MBOED), although 70MBOED exit rate was provided. Capex of \$1,097mm was in line with our \$1,099mm, but Upstream spending (\$907mm) exceeded budget (\$800mm).</p> <p>2019 production guidance in line. Apache reiterated \$2.4Bn Upstream budget (\$4.0Bn w/ Altus), but raised the low-end (1.7% mid-point) of 2019 production (now 425-440MBOED; up 2.6% y/y). Apache maintained 4Q19 exit rate of 5% Permian oil, 12-16% U.S., 6-10% WW, -2-4% International, which now with 4Q18 actuals is a wash to BOEs, but more oily (Unchanged WW, lower U.S., higher International, Higher Permian oil). Alpine High moved to the low-end of prior guidance at 85-90MBOED (vs. 85-100MBOED). GAAP Oil guidance for 2019 (BMOe) is ~242MBOD (down 3% y/y), below consensus (245MBOD), while reported BOEs of 485-505MBOED are in line with Street estimates (498MBOED). Cost details look net neutral to our model, with lower LOE and cash taxes, offset by higher GP&T and G&A. Pro-forma production for 1Q19 of 425MBOED is in line with our 427MBOED, and implies flat International and +1.4% U.S. volume (Alpine flat with YE18 exit).</p> <p>2020-21 targets cash flow neutrality. Apache noted at \$50-55Bbl WTI Upstream capex of \$2.5-2.8Bn (vs. our \$2.5Bn), would deliver “attractive growth” and cash flow neutrality, but we model ~\$1.0/0.6Bn (\$50/55Bbl) per annum consolidated outspend (after dividend/NCI; \$600/450mm Altus) while growing BOEs low-single digits, with flattish oil volume, and don’t see how growth accelerates off 2019 or consolidated FCF is generated.</p> <p>Cowen wrote that the Company’s “4Q18 EPS/EBITDAX beat on lower costs offset by slightly lower than expected production.” The analyst commented that “few details were provided around [Apache’s] 2020-2021 outlook.” The analyst noted that the Company “reiterated its 2019 upstream capital budget ... while updating its annual adjusted</p>

Exhibit 12

Impact Date	Event
	<p>production guidance ... +1.6% toward the midpoint.” Cowen added that Apache’s “[p]roduction for 1Q19 is guided ... 1% ahead of our prior estimate and indicating the growth should be fairly ratable throughout 2019”:²⁴⁴</p> <p>4Q18 EPS/EBITDAX beat on lower costs offset by slightly lower than expected production. APA reiterated its commitment to returning 50% of FCF generated and revised 19 production guidance upward by 1.6%. We expect a positive reaction to APA’s print though few details were provided around its 2020-2021 outlook save remaining free cash neutral and intending to grow at unspecified rates.</p> <p>2019 Capital Budget Reiterated and Production Guidance Increased: The company reiterated its 2019 upstream capital budget of \$2.4B, which it released in early February while updating its annual adjusted production guidance to 425 to 440 Mboe/d, up from 410-440 Mboe/d, +1.6% toward the midpoint. This compares favorably to our estimate of 427 Mboe/d.</p> <p>2020 and Onward: APA expects to spend \$2.5-2.8B/year through 2021 in a \$50-55/bbl WTI price environment, which should allow the company to remain cash flow neutral, meaningfully lower than our estimates of approximately \$3.3B of upstream spending in 2020 and 2021 and consensus of \$3.1/\$3.4bn, respectively. Given the company’s past guidance on 2020 volumes, which were omitted from this release, expect questions and discussions on the company’s strategy and expectations around future growth vs. current consensus of 8.5% growth in 2020 and 9% in 2021.</p> <p>Use of FCF Reiterated: As mentioned in the company’s Capital Budget and Production Outlook several weeks ago, the company reiterates its history of shareholder returns and its plan to return over 50% of FCF generated to shareholders in the form of share and debt repurchases and dividends. The company currently pays a 2.98% dividend yield, as of market close.</p>

²⁴⁴ Cowen, “Apache Corporation, APA 4Q18 Quick Take,” February 27, 2019.

Exhibit 12

Impact Date	Event
	<p>1Q19 Guide Ahead of Estimates. Production for 1Q19 is guided to 425 MBOED, 1% ahead of our prior estimate and indicating the growth should be fairly ratable throughout 2019 as the Company looks to grow 8% from 4Q18-4Q19.</p> <p>2018 Proved Reserves: Worldwide proved reserves increased ~5% from YE17 to YE18. Proved undeveloped reserves represented 12% at year-end, down from 13% at YE17.</p> <p>Credit Suisse wrote that the Company's adjusted EPS "beat consensus" and the analyst's estimate, EBITDX was "in line," and production "was in line with guidance ... but just below consensus ... (though oil volumes were slightly above expectations)." The analyst commented that the Company made a "[m]odest bump to 2019 volume outlook" and "[p]rovide[d] incremental visibility on 2020-21 capex/FCF, but [was] vague on growth expectations." The analyst increased its price target to \$37 from \$36 "based on ~5.5x normalized 2019E DACF".²⁴⁵</p> <p>Modest bump to 2019 volume outlook; no change to capex. Revised "reported" volume guidance of 485-505 MBoed (+6% YoY) is ~1-2% higher vs. prior outlook (~488 MBoed) & reflects stronger 4Q momentum from the Midland/Delaware (4Q Permian oil >4% above guide) as APA cut Alpine High guidance by ~5% (to 85-90 MBoed). It continues to see exit-rate growth (4Q19/4Q18) of ~6-10% YoY, with US volumes +12-16%, Permian oil +5% & International down ~2-4%. The 2019 upstream capex budget of ~\$2.4bn was unchanged (was cut from \$3.0bn earlier this month to target FCF neutrality at \$53/Bbl), with ~75% allocated to its US assets. At current strip prices we see APA's upstream business generating a >\$400MM organic FCF surplus (after divi) this year, better than our prior ~\$200MM forecast.</p> <p>Provides incremental visibility on 2020-21 capex/FCF, but vague on growth expectations. Assuming \$50-\$55/Bbl WTI, APA indicated 2020-21 upstream capex should trend to ~\$2.5-\$2.8bn/annum (up ~10% vs. 2019E) & enable FCF neutrality, though it was quite vague on growth expectations ("continued, attractive growth"). It plans to provide more clarity on the conference call: we'd note current 2020 consensus expectations are for ~9% YoY growth. APA</p>

²⁴⁵ Credit Suisse, "Apache Corporation, Raising 2019 Estimates; FCF Neutral with High Single-Digit Growth at \$50-55/Bbl in 2019-21," February 28, 2019.

Exhibit 12

Impact Date	Event
	<p>remains committed to returning >50% of surplus FCF (including asset sale proceeds) to shareholders before contemplating higher activity levels: our revised forecasts imply a modest ~\$500MM FCF surplus over 2020-21, implying a large buyback program would require asset sales.</p> <p>4Q EPS beats but EBITDX & production largely in line. Clean EPS of \$0.31 beat consensus/CSe \$0.24/\$0.23, though EBITDX of ~\$1.14bn was in line. Production of ~482 MBoed (+10% YoY) was in line with guidance of ~484 MBoed but just below consensus/CSe ~488/489 MBoed (though oil volumes were slightly above expectations). Costs came in ~2% above CSe.</p> <p>Fully valued vs. peers. \$37 TP (was \$36) is based on ~5.5x normalized 2019E DACF. Risks: Permian gas diffs, Alpine High execution.</p> <p>Evercore wrote that the Company's fourth quarter total production was "slightly below our/street estimates" but adjusted CFPS "was modestly above" the analyst's estimate. The analyst remarked that "[a]s expected, APA tightened the capital belt across all regions and re-set expectations accordingly (lower end of FY volume guidance raised)." The analyst commented that the "effect of a 22% reduction in upstream capital at APA [for 2019] fell proportionally across regions with a slowdown in Alpine activity." Evercore's "focus for 2019 is Alpine High (note 4Q volumes were below expectations with infrastructure delays / outages again a noted driver)":²⁴⁶</p> <p>With the 2019 budget and associated production guidance previously released, the focus of APA's YE18 report was a more detailed region-by-region look at operating trends. Guidance had suggested an increase in 4Q upstream capex (\$832 mm vs. \$800 mm guide) with deceleration implied by the 2019 cadence. Permian oil growth was the bright spot (99 vs. 95 mbpd guide) with a slowdown to 5% entry to exit growth expected during 2019. As expected, APA tightened the capital belt across all regions and re-set expectations accordingly (lower end of FY volume guidance raised). Our focus for 2019 is Alpine High (note 4Q volumes were below expectations with infrastructure delays / outages again a noted driver). The reduction of</p>

²⁴⁶ Evercore ISI, "Apache, In Line Q, Adapting to the environment with knock on effects," February 28, 2019, 10:06 AM.

Exhibit 12

Impact Date	Event
	<p>activity at APA looks to be slowing the pace of development at ALTM (N/R) APA's midstream partner in the field. Altus has delayed the construction of Cryos #4, #5 and reduced EBITDA guidance (~25%) for 2019-21 vs. initial expectations. We have viewed 2019 as important for Alpine with investor skepticism high, the pull through of volumes and margins after 3+ years of investment is an important milestone expected for 2H19. Following the 25%+ bounce back in the stock YTD we suspect some will question what all the excitement was about. Maintain In-line</p> <p>4Q Results review: APA reported total 4Q18 production of 482 mboe/d (incl. NCI), slightly below our/street estimates of 491/487 mboe/d, however when adjusted for Egypt NCI and tax barrels, production was in line with our/guided estimates of 421 mboe/d. Total US production of 283 mboe/d was in line with our estimate. US oil was 111 mbpd vs our 104, implying a 7% sequential growth. Adjusted CFPS of \$2.46 was modestly above our \$2.44/shr.</p> <p>Permian: During the quarter, APA ran an active 16 rig program in the Permian and completed 66 gross wells (26–Midland, 9–Delaware and 26–Alpine High). At Alpine High lower than expected NG/NGL production was mostly attributed to unplanned operational issues during the quarter. That said, Permian oil volumes grew 9% sequentially and 15% exit to exit providing momentum into 2019.</p> <p>International operations: In Egypt, APA averaged 10 rigs during 4Q and completed 24 wells. Total unadjusted production 136 mboe/d was -12% lower sequentially and -15% lower exit to exit. North Sea had a strong quarter where APA completed 4 gross wells and saw production rise to 63 mboe/d (25% QoQ and 9% exit to exit) mainly as a result of startup of Garten wells and the forth development well at Callater.</p> <p>2019 guide and beyond: APA reiterated previously announced O&G capex of \$2.4 Bn of which 75% is expected to be budgeted for the US. The 2019 budget calls for 12 rigs in the US (182 gross wells), 7-8 rigs in Egypt (70 wells), 3 rigs in North Sea (17 wells) and 1 exploration opportunity off the coast of Suriname. International remains positioned as a Brent levered free cash generator. APA raised the low end of the guidance range for 2019 adj. production from 410-440 mboe/d to 425-440 mboe/d and it expects to see 6-10% overall growth rate exit to exit</p>

Exhibit 12

Impact Date	Event
	<p>(12% - 16% US only and 5% for Permian oil). With Alpine High still accounting for 30% of the total capital spend, we suspect market focus to center here. APA anticipates a go forward capex range of \$2.5-\$2.8 Bn/yr in a \$50-\$55/bbl WTI environment supporting CF neutrality, and an expectation that 50% of excess cash flow will be returned to shareholders.</p> <p>What to look for on the call?</p> <p>Alpine High: The knock on effect of a 22% reduction in upstream capital at APA fell proportionally across regions with a slowdown in Alpine activity. With our previous expectation of \$1.6 Bn of midstream capital in 2019 covered by ATLM, look for a discussion of how the capital shift will impact volume / margin growth from the field. Note ALTm ended 2019 with \$450 mm of cash on hand and a \$800 mm revolver (\$450 mm initial size with ability to upsize).</p> <p>Suriname exploration: Recent activity along the Atlantic margin has increased expectations surrounding Block 58 in Suriname (APA 100% WI). APA expects to spud 1 a well at mid-year, has secured a drill ship and questions on the strategy (farm down etc.) are to be expected.</p> <p>North Sea: 4Q18 results saw volume growth as forties came back from some turn arounds and production from Garten (rate disclosed in Dec release) drove the sequential increase. Look for a discussion of additional opportunities and ability to extend / maintain plateau at this increased level.</p> <p>Jefferies wrote that Apache's announcement was a "[m]odest [p]ositive," given that adjusted EPS was better than the analyst's estimate and consensus, production was short of both, and adjusted EBITDA "came in btwn" them. Jefferies also noted that Apache "raised FY19 adjusted production guidance 2% at the midpoint".²⁴⁷</p> <p>Modest Positive. APA delivered 4Q18 results ahead of cns expectations, notably delivered 9% sequential Permian oil growth, and raised FY19 adjusted production guidance 2% at the midpoint.</p>

²⁴⁷ Jefferies, "Apache, 4Q18 Beat, Increased FY19 Production Guidance," February 27, 2019, 7:04 PM.

Exhibit 12

Impact Date	Event
	<p>APA Reports EPS Beat APA reported adj EPS of \$0.31, above JEF at \$0.18 and cns at \$0.24. Production of 482 mboe/d was below JEF at 499 mboe/d and cns at 488 mboe/d. Oil production of 249 mb/d was in btwn JEF at 253 mb/d and cns at 246 mb/d. Adj EBITDA of \$1,143 MM also came in btwn JEF at \$1,154 MM and cns at \$1,135 MM. The variance vs our model was driven by lower production taxes, G&A, and income taxes, partially offset by lower production (partially Alpine High gas due to field-wide shut ins, partially due to lower Egypt net volumes), lower int'l oil realizations, and higher LOE.</p> <p>2019 Guidance APA increased its '19 adj prod guide to 425-440 mboe/d (from 410-440), and reiterated '19 exit rate guide of 6-10% for the company, 12-16% for US, and 5% for Permian oil. APA expects to spend \$2.4 Bn in upstream capital in '19 (-22% from '18). For 1Q19, APA projects adj prod of 425 mboe/d including 70 mboe/d from Alpine High (AH). FY19 volumes at AH are projected at 85-90 mboe/d.</p> <p>Midland Basin Ops APA operated five rigs and POP'd 26 wells in 4Q18, and plans to POP 55 wells in '19. APA highlighted a handful of pads that were recently POP'd, the strongest being the 4-well Torpedo pad eastern Upton County, which delivered an avg IP30 of 1,646 boe/d, 78% oil from an avg 9,354' lateral.</p> <p>Delaware Basin Ops APA operated four rigs in the Delaware outside the AH in 4Q18 while POP'ing nine wells. APA ran seven AH rigs and POP'd 26 wells, driving avg prod of 58 mboe/d in 4Q18 and an exit rate of 70 mboe/d. APA plans to POP 85 wells at AH and 42 wells in the Delaware in '19. The company highlighted the 4-well Palmillo pad targeting the BS in Eddy County, which delivered an avg IP30 of 1,727 boe/d 79% oil from an avg 5,117' lateral. In AH, the company's six well Mont Blanc pad delivered an avg IP30 of 3,137 mboe/d (1,150 Btu gas) from an avg 4,824' lateral in the Woodford.</p>

Exhibit 12

Impact Date	Event
	<p>International Ops In 4Q, APA avg'd 10 rigs in Egypt and three rigs in the N Sea. In Egypt, APA drilled/ completed 24 G wells with a 96% success rate and reported Egypt adj prod of 74 mboe/ d (-4% seq). In the N. Sea, APA reported prod of 63 mboe/d (+25% seq) and drilled/ completed 4 G/4 N wells. The increase in prod was due to the startup of Garten in Nov and a full qtr of prod at Callater. In Suriname, APA completed geologic/geophysical evaluation and has identified numerous drill ready prospects, and with a drillship now contracted, APA will drill its first well in mid-19.</p> <p>Key Points for the Call Plans to spud first well in Suriname in mid-2019 Details around Alpine High full-field shut in in 4Q18 4Q18 capital ahead of guidance</p> <p>JP Morgan wrote that the Company reported “relatively in-line 4Q18 cash flows and slightly higher 4Q18 capex” but had “a disappointing quarter from Alpine High (AH) as 4Q18 AH production ... [was] 15%[] below our forecast.” However, the analyst “anticipate[d] a positive reaction to the print on the back of 2% oil beat.” JP Morgan noted that “APA bumped its 2019 production guidance at in-line capex,” which was in line with the analyst’s estimate, but 2019 production guidance for Alpine High was “below our forecast.” The analyst observed that the Company’s “1Q19 adjusted production guide [was] in line with our expectations”.²⁴⁸</p> <p>JPM View: Stock Reaction-Positive. Despite relatively in-line 4Q18 cash flows and slightly higher 4Q18 capex, we anticipate a positive reaction to the print on the back of 2% oil beat, including a 4.1% Permian oil beat relative to our model owing to higher Permian completion activity. Meanwhile, APA bumped its 2019 production guidance at in-line capex. Our only quibble was a disappointing quarter from Alpine High (AH) as 4Q18 AH production of 58 MBoe/d was 10 MBoe/d, or 15%, below our forecast owing to higher shut-ins, completion deferrals, and the timing of start-up of new facilities, but the exit rate increased to 70 MBoe/d vs.</p>

²⁴⁸ JP Morgan, “Apache Corp, 4Q18 Flash: Permian Oil Beat and 2019 Guidance Bump; Stock Reaction-Positive - ALERT,” February 27, 2019, 8:30 PM.

Exhibit 12

Impact Date	Event
	<p>our 81 MBoe/d estimate for 1Q19. The 2019 AH guide of 87.5 MBoe/d was 8% below our forecast, but this year's U.S. oil guide was in line. Internationally, North Sea volumes of 63 MBoe/d climbed to the highest levels in two years and topped our expectation by 11.5% owing to the Garten and Callater fields. Finally, APA has completed its evaluation of Block 58 in Suriname, identifying several large scale prospects. APA expects to spud its initial well on Block 58 at mid-year 2019 as the company recently contracted a drillship.</p> <p>2019 production guidance dialed in at upper-end at in-line capex relative to our model. APA raised its 2019 adjusted production guidance by 1.8% to 433 MBoe/d (425 MBoe/d to 440 MBoe/d range), which represents the upper-end of its earlier guidance range of 410 MBoe/d to 440 MBoe/d, which is in line with JPMe. APA guided to FY19 upstream capex of \$2.4 billion, which was in line with our forecast and the company's recent guide.</p> <p>1Q19 adjusted production guide in line with our expectations: APA's 1Q19 total production guidance of 488 MBoe/d was 3.3% below our JPMe of 504 MBoe/d and 2.2% below consensus of 499 MBoe/d. APA's 1Q19 adjusted production guide of 425 MBoe/d was in line with JPMe. The 1Q19 US production guide of 287 MBoe/d was 3.4% below our expectations owing to a lower Alpine High guide (70 MBoe/d vs. our 81 MBoe/d expectation).</p> <p>JP Morgan, in a later report, added that Apache's U.S. production results, which were higher than guidance, "were partially offset by weaker than expected natural gas and NGL volumes." The analyst observed that "Management noted that its 1H19 production volumes in the U.S. will be flat to 4Q18 volumes and 2H19 volumes will ramp up significantly".²⁴⁹</p> <p>Positives Total production increased by 10% YoY to 482mbbls/d (adjusted production grew by 13%) as US production increased by 28% YoY. 4Q production in the U.S. of 283mboe/d and 4Q</p>

²⁴⁹ JP Morgan, "Apache Corp, 4Q18: Decent Results, Strong U.S. Oil Growth, Production Guidance Increased, Breakeven at Mid-40s WTI," February 28, 2019, 4:26 PM.

Exhibit 12

Impact Date	Event
	<p>Permian oil production of 99mbbls/d both exceeded management's guidance. U.S. production results were partially offset by weaker than expected natural gas and NGL volumes.</p> <p>APA increased its 2019 production guidance to 425-440mboe from 410- 440mboe/d. Management noted that its 1H19 production volumes in the U.S. will be flat to 4Q18 volumes and 2H19 volumes will ramp up significantly. APA reiterated 2019 capex guidance of \$2.4bn, which is 22% less than 2018, while guiding for capex of \$2.5-\$2.8bn from 2019- 2021 at \$50 and \$55 WTI. Management noted that the company can be cash flow breakeven at mid-40's WTI.</p> <p>APA ended 2018 with 1.23bboe of proved reserves compared to 1.17bboe at YE17. The company had a replacement ratio of 135% of 2018 production.</p> <p>APA continues to make progress on key growth projects, particularly in international markets, after starting up production at its Garten development in the North Sea in late November. The company is expected to spud its first well in offshore Suriname in the middle of 2019. On Suriname, management noted they are willing to listen to partnership proposals on the project (100% owned by APA today).</p> <p>Liquidity remains ample in our view, with \$714mm of cash on hand, ~\$4.0bn of total revolver capacity, and \$150mm of debt maturing in the next 18 months.</p> <p>Negatives International production declined by 9% YoY to 199mboe/d on the back of weakness in Egypt where production declined by 15% YoY but partially offset by strength in the North Sea, where production grew by 9% YoY. The company guided for international production declines of 2-4% from 4Q18 to 4Q19.</p> <p>Macquarie wrote that the Company's announcement was a "light [p]ositive" as "APA increased the low end of its 2019 production guide and held 2019 capex guide unchanged." The analyst noted that the Company's free cash flow missed its estimate as "4Q18 production fell short of expectations; capex came in higher, primarily due to</p>

Exhibit 12

Impact Date	Event
	<p>midstream spend.” The analyst commented that the Company’s first quarter and full-year production guidance for Alpine High was below its estimates. Macquarie “th[ought] the [Company’s] aim to achieve FCF neutrality comes relatively in line with expectations, assuming it is after the dividend”.²⁵⁰</p> <p>Impact light Positive – APA increased the low end of its 2019 production guide and held 2019 capex guide unchanged.</p> <p>Production Guidance Update and Additional Comments on Guidance: APA increased the low end of its 2019 production guidance to 425-440mboe/d from 410-440mboe/d despite the guidance only being issued ~3 weeks ago. US production guidance is now 295-305mboe/d up from 285-300mboe/d previously. However, we would note that the Alpine High guidance of 85-90mboe/d for 2019 is below our estimate of 93mboe/d and 1Q19 Alpine High production is expected to be 70mboe/d, below our estimated 77mboe/d. Guidance on 2019 expense items was mixed as per unit LOE was below our estimate while G&A was above our estimate.</p> <p>Initial Look Longer-Term: APA commented that it expects annual capital spend of US\$2.5-2.8b (presumably upstream only), compared to our 2020 estimate of US\$2.9b and consensus of US\$3.1b (unclear if skewed due to Altus spend). The company’s initial look through 2021 assumes US\$50-55 WTI with the expectation to generate “attractive growth” while achieving cash-flow neutrality. We think the aim to achieve FCF neutrality comes relatively in line with expectations, assuming it is after the dividend. However, the LT production growth assumptions are key.</p> <p>Insights into the 4Q18 FCF Miss: 4Q18 production fell short of expectations; capex came in higher, primarily due to midstream spend. Egypt production of 136mboe/d missed our 153mboe/d estimate, as Permian NG production of 554Mmcf/d missed our 602Mmcf/d estimate. Permian crude production of 99kb/d (compared to our 94kb/d estimate) helped partly offset the</p>

²⁵⁰ Macquarie Research, “Apache Corp, Permian Oil Beat but Quarter comes with Noise,” February 27, 2019, 8:36 PM.

Exhibit 12

Impact Date	Event
	<p>aforementioned production misses. LOE per BOE came in slightly higher than our estimate, and the company paid more in cash taxes than expected.</p> <p>Action and recommendation We think near-term execution is key on the name with a growing focus on portfolio allocation beyond 2019.</p> <p>Piper Jaffray wrote that the Company’s “pre-released 2019 outlook remov[ed] much of the drama, [but] APA still offered several encouraging signs with a beat on Permian oil vols in 4Q ... and an upward revision to FY19 target vols.” The analyst noted that the Company’s cash flow from operations was short of its estimates but better than consensus, adjusted EPS was short of its estimate, and opex was “was slightly better than we expected”.²⁵¹</p> <p>With a pre-released 2019 outlook removing much of the drama, APA still offered several encouraging signs with a beat on Permian oil vols in 4Q (99 Mb/d vs. SE of 94 Mb/d) and an upward revision to FY19 target vols (+2% to 432.5 Mboe/d). Into the call, we expect investors to focus on the trajectory of activity reductions (and onshore volumes) through YE, the read-through to sustained capital efficiency into 2020+, and the roadmap toward generating sustainable free cash flow. Positives: 1) 4Q18 Permian oil beat 2) 4Q18 opex 3) FY19 production guide raised 4) Repurchased 6.9mm shares in 4Q. Negatives: 1) 4Q18 Alpine High vols 2) 4Q capex slightly high (\$823m vs. \$800m).</p> <p>FY19 Budget Maintained; Further Details Provided: APA provided further details around the \$2.4Bn budget announced a few weeks ago with US upstream spend now expected to decrease \$600mm YoY to ~\$1.8Bn in FY19 highlighted by a reduction in the Permian rig count (12 rigs in FY19 vs. 18 in FY18) with the Alpine High likely to average 4-5 rigs (vs. 7 in 4Q18 and vs. the prior targeted 9 rigs). We look for insight on the management of the DUC backlog in FY19 and the implications to the preliminary outlook for volumes/ capital into 2020 particularly in the Midland where FY19 spuds appear relatively light at first glance (~55 spuds targeted in FY19 vs.</p>

²⁵¹ Simmons Energy, A Division of Piper Jaffray, “Apache Corporation, Q4’18 Quick Look: Permian Oil Beat; FY19 Vol Guide Raised,” February 28, 2019, 9:02 AM.

Exhibit 12

Impact Date	Event
	<p>70+ TILs in FY18). Expect an adherence to ‘cash flow neutrality’ (inclusive of dividend but ex Altus capex) to drive FY20-21 capital spend in the range of \$2.5-2.8Bn at \$50-\$55/bbl WTI.</p> <p>FY19 Vol Guide Raised; Exit Rate Growth Maintained: FY19 total net production is now expected to average ~432.5 Mboe/d at the mid-pt vs. 425 Mboe/d previously. The prior guide for 4Q19 net production was reaffirmed at ~455 Mboe/d (in-line with prior SE ests). Despite the beat on Permian 4Q18 oil vols (99 Mb/d vs. 95 Mb/d guide), APA re-affirmed a 5% exit-exit growth rate implying 4Q19 Permian oil vols of ~105 Mb/d vs. SE est 102 Mb/ d. And despite operational setbacks in 4Q18, Alpine High vols continue to appear to trend above (~5%) SE estimates (108 Mboe/d) by 4Q19. We look for management to provide color around the production trajectory in the Midland/Alpine High through YE19 and the implications for the FY20 outlook as well as any read-through to the pace of planned Altus infrastructure development over the near-term.</p> <p>FY19 Operating Costs Broadly In-Line: FY19 LOE costs are expected to range between \$7.5-\$7.75/boe or ~5% below SE estimates while G&A/interest expense were broadly inline (\$850mm vs. SE of \$830mm) while GTP is expected ~\$50mm higher inclusive of incremental Altus operating costs.</p> <p>4Q18 Results Solid: APA reported CFO (consolidated, ex WC) of \$860mm vs. SE/Street ests of \$900/\$850mm with the miss vs. SE estimates chiefly driven by lower than expected int’l oil realizations (which the company had previously highlighted in their late January 4Q18 supplemental guide). Opex (LOE, G&A, GTP) was slightly better than we expected while capex of \$823mm mostly inline with guide of \$800mm. Adj EPS of \$0.31 came in light vs. SE of \$0.39/sh on prior announced dry hole costs in the Qtr not captured in our model.</p> <p>RBC wrote that it was a “[s]olid quarter for the Midland Permian” as “Management goosed up the low end of its production guidance while maintaining its spending plans.” The analyst added that Apache’s “longer-dated view for 2020-21 of CAPEX ... [wa]s consistent with its prior outlook.” RBC commented that the Company’s adjusted EPS</p>

Exhibit 12

Impact Date	Event
	<p>and CFPS were higher than its estimates and better and in-line with consensus, respectively, and 4Q18 adjusted production was short of its estimate:²⁵²</p> <p>Our view: Solid quarter for the Midland Permian. Management goosed up the low end of its production guidance while maintaining its spending plans. The longer-dated view for 2020-21 of CAPEX at \$2.4-2.8 billion is consistent with its prior outlook, when adjusting for midstream spending. Management committed to prioritizing cash to shareholders with higher oil prices. We expect APA shares to trade modestly higher.</p> <p>4Q18 recurring EPS/CFPS of \$0.31/\$2.25 compare to our estimates of \$0.22/\$2.17 and consensus of \$0.22/\$2.25. 4Q18 adjusted production for Egypt tax barrels and non-controlling interest of 421 Mboe/d (209 Mb/d oil) compares to our 423 Mboe/d (206 Mb/d oil) model and the 421 Mboe/d guidance. Permian oil production of 99 Mb/d exceeded our 96 Mb/d model. Upstream capital spending of \$823 million was in line twith our \$794 million estimate and consensus of \$845 million.</p> <p>2019 guidance As previously reported, 2019 upstream spending was guided to \$2.4 billion and targets cash flow neutrality at \$53/bbl.</p> <p>The company increased the low end of its full-year 2019 adjusted production guidance to 425-440 Mboe/d from 410-440 Mboe/d.</p> <p>1Q19 production guidance of 425 Mboe/d is 2% below our model, all related to international production.</p> <p>Longer-term outlook Adjusted production for 2020 was previously guided to 475-510 Mboe/d (N.A. 350-370 Mboe/d, international 125-140 Mboe/d).</p>

²⁵² RBC Capital Markets, “APA – 4Q18 CFPS in Line with Consensus; 2019 Production Guide Slightly Better,” February 27, 2019, 6:31 PM.

Exhibit 12

Impact Date	Event
	<p>For 2020-21, APA plans to spend \$2.5-2.8 billion, and assuming \$50-55/bbl (WTI) will achieve FCF neutrality. If higher oil prices and FCF generation occur, APA plans to deliver half of the FCF to investors before increasing activity further.</p> <p>Scotia wrote that the Company’s adjusted EPS and EBITDAX were short of its estimates but ahead of and in-line with consensus, respectively, while production “was in line with guidance and our estimate.” The analyst commented that “Apache had provided an operational update regarding 4Q18 and an updated 2019 outlook, so little was new in the report.” Scotia noted that “the only update [to Apache’s guidance] is an upward movement to the midpoint of production ... due to strong 4Q18 exit rate momentum entering 2019”.²⁵³</p> <p>QUICK TAKE: Prior to the quarterly release, Apache had provided an operational update regarding 4Q18 and an updated 2019 outlook, so little was new in the report. In terms of adjustments to 2019 guidance, which was provided less than a month ago, the only update is an upward movement to the midpoint of production from 425 MBoe/d to 432.5 MBoe/d (+1.8%). The move upward is due to strong 4Q18 exit rate momentum entering 2019. Earnings beat consensus while EBITDAX was in line and production met both our estimates and guidance. Operationally, recent well results remain primarily in line with our expectations, and growth in 2019 remains weighted towards natural gas over crude largely due to the Alpine High. The expectation remains set for 12%-16% U.S. production growth (4Q18-4Q19) with only a 5% growth level in Permian oil. International production is expected to decline 2%-4% over that same period. Overall, an uneventful update, as expected, and we continue to focus more on names with a more liquids oriented growth profile.</p> <p>4Q18 Results: APA posted adjusted EPS and EBITDAX of \$0.31 and \$1.1 billion. Consensus EPS was \$0.24 and SHW was at \$0.39, while the Street was at \$1.1 billion for EBITDAX and SHW was \$1.2 billion. Production of 421 MBoe/d, net of Egypt tax barrels, was in line with guidance and our estimate.</p>

²⁵³ Scotia Howard Weil, “Apache Corporation, 4Q18 EBITDAX In Line; Minor Tweaks to 2019 Production Outlook,” February 28, 2019, 7:33 AM.

Exhibit 12

Impact Date	Event
	<p>Seaport wrote that Apache’s oil production “beat the Street by 2% but was offset by lower volumes on NGL (-6%) and gas (-2%), resulting in” EBITDA that was in-line with consensus. The analyst commented that it was a “[s]olid update as APA raises its FY19 production outlook by ~2% without a subsequent increase to capex only several weeks after issuing initial guidance.” Seaport noted that it wanted “further clarity on APA’s oil growth trajectory to gain comfort on its longer-term FCF generation abilities”:²⁵⁴</p> <p>Summary: Solid update as APA raises its FY19 production outlook by ~2% without a subsequent increase to capex only several weeks after issuing initial guidance – APA continues to target Q4:19/Q4:18 growth rates, but now with stronger momentum entering 2019, which was most evident in the Permian where APA’s oil volumes came in +4% vs. Q4:18 guidance. In addition, management commentary in the release pointed to a restrained three-year outlook targeting annual capex of \$2.5B-\$2.8B (modestly higher than FY19’s \$2.4B) assuming \$50-\$55/bbl oil targeting “attractive” growth within cash flow. While we expect the above factors to be met positively, we’d like further clarity on APA’s oil growth trajectory to gain comfort on its longer-term FCF generation abilities – to that end, we note APA has yet to provide Q4:19/Q4:18 total company oil growth targets. We’ll be looking for additional color on the call.</p> <p>Highlights What we liked: Q4 details. Oil production beat the Street by 2% but was offset by lower volumes on NGL (-6%) and gas (-2%), resulting in \$1,143MM EBITDA ~in-line with the Street. Capex came in at \$823MM, +3% vs. Street. US production of 283 Mboepd was -2% vs. guidance, driven by a lighter showing at Alpine High (-15% vs. guidance). However, APA’s oily International assets came in +3% vs. guidance and Permian oil production was +4%, contributing to the oil production beat.</p> <p>FY19 production guidance raised without incremental capex. With Wednesday’s release, APA maintained its previous Q4:19 exit-to-exit production growth rates for total company adjusted</p>

²⁵⁴ Seaport Global, “Apache Corp., Q4 First Look: 2% Oil beat; 2% FY19 production guidance raise,” February 27, 2019.

Exhibit 12

Impact Date	Event
	<p>production, US BOEs, and Permian oil volumes (6%-10%, 12%-16%, and ~5%, respectively). That said, APA did raise its FY19 average adjusted production expectations to 425 Mboepd-440 Mboepd in Wednesday's release, up ~2% vs. its prior 410 Mboepd-440 Mboepd guidance range, due to strong production momentum entering into 2019, noticeably from its International and non-Alpine High Permian assets.</p> <p>2020+ outlook. Looking further down the road, APA indicated in the release that it expects to spend \$2.5B-\$2.8B per year in 2020/2021 assuming a \$50-\$55/bbl WTI – this level of investment will allow APA to realize attractive growth which was characterized as “attractive” (i.e., not quantified) while remaining cash flow neutral. APA further noted that ~50% of any potential FCF in excess of these projections (inclusive of proceeds from asset sales) would be returned to shareholders before it considers an increase in D&C activity.</p> <p>What we didn't like: Oil growth trajectory remains uncertain. As was the case with its original FY19 guidance release, APA only provided a 5% Q4-to-Q4 growth target for Permian oil volumes, and did not provide an outlook for int'l and non-Permian US oil production.</p> <p>Other data points: FY19 capital allocation. Reiterating its \$2.4B upstream budget, which it announced earlier this month, APA plans to allocate ~75% of capital to its U.S. assets and the remaining ~25% internationally. Specifically in the US, the company will average ~12 land rigs throughout the year, which are expected to drill ~85 wells at Alpine High, ~55 wells in the Midland Basin, and an additional ~42 wells in the Delaware. On the international front, APA will average ~7-8 rigs in Egypt which equates to ~40 development/~30 exploratory wells in FY19, two platform rigs and one floater in the North Sea drilling a total of ~17 wells, and intends to drill one exploration well on its Suriname asset.</p>

Exhibit 12

Impact Date	Event
	<p>Societe Generale wrote that the Company’s quarterly adjusted EPS was in-line with the analyst’s estimate and higher than consensus, and DCFPS was greater than the analyst’s estimate but lower than consensus. The analyst noted that “[t]here was no change to APA’s prior 2019 cap-ex plan”.²⁵⁵</p> <p>4Q18 Adjusted EPS/DCFPS (discretionary cash flow per share after common stock dividends) of \$0.31/\$1.99 vs. SGE of \$0.31/\$1.78 and Street of \$0.23/\$2.04. Reported EPS of \$(1.00) had \$500MM of asset impairments across many current and non-current field areas, but no geographic breakdown was given. We consider it YE portfolio clean-up. Output, on an adjusted basis for Egypt, was 421 MBOE/d, +5% QOQ, with good Permian basin oil and natural gas growth, even with some Alpine High constraints, and was 50% oil, 67% US, and the rest international. QOQ price realizations fell 15% on a BOE basis to \$34.23/BOE. APA ran 31 rigs in 4Q (18 US (5 Midland, 7 Alpine High, 4 in the Delaware and 2 for other purposes)) and completed 69 net wells. Cap-ex was \$1.1 billion (\$823MM upstream). During 4Q18, APA generated \$1 billion CFFO, paid \$94MM in dividends and repurchased 6.9MM shares in 4Q18 or about 2% of shares outstanding. At YE, APA had \$714MM in cash (\$1.90/share) and LTD/Book Capitalization of 54%.</p> <p>2018 Adjusted EPS/DCFPS were \$1.77/\$8.21 vs. \$0.24/\$6.18 in 2017. Adjusted output of 395 MBOE/d was +13% YOY, and in the US of 261 MBOE/d, up 18% with 27% Permian oil growth. Overall BOE price realizations were +28% to \$38.75BOE. Add good unit cost control and it was unsurprising to see CFFO rise 30% to \$3.8 billion. APA also established Altus Midstream to support the Alpine High development, grew UK output and engaged in new exploration activity in Egypt. During 2018, APA returned almost \$1 billion to shareholders (dividends, stock buybacks and debt reduction).</p> <p>Reserves</p>

²⁵⁵ Societe Generale, “Apache Corp, 4Q18 Adj. EPS/DCFPS in line/above our estimates; 2019 cap-ex plan unchanged; a Suriname wildcat; partner?” February 28, 2019, 1:06 AM.

Exhibit 12

Impact Date	Event
	<p>At YE, proven reserves of 1.23 BBOE (12% PUD, 47% oil and 72% US) were +5% YOY, even with 73 MMBOE of negative reserve revisions that were likely related to the 4Q18 impairment. “All sources” finding costs, which included the negative revisions, were \$16.35/BOE and without them, \$12.39/BOE.</p> <p>2019 outlook There was no change to APA’s prior 2019 cap-ex plan of \$2.4 billion, which was announced earlier this month, and will be 75% US and the rest international. From 4Q18, even with a 22% YOY cap-ex reduction, APA is forecasting 8% midpoint growth, +5% Permian oil and 17% US (reflecting the Alpine High) and 2% international output decline (since those assets are being managed, in part, for free cash flow) for 2019. In 1Q19, output will be up 1% vs. 4Q18. Lastly, APA plans by midyear to spud a DeepH20 well offshore Suriname, which is in the neighbourhood of the large Guyana oil discoveries. APA mentioned that it has identified “numerous, large, drill ready prospects with different play concepts”, but no partner was mentioned. It has contracted a drillship, but we would assume that APA would have a partner by the time the wildcat gets spud.</p> <p>SG view Much of APA’s business strategy has now become the M.O. of other large cap peers in terms of prudent production growth, focus on free cash flow generation and return of capital to shareholders. APA has had that strategy for years. We don’t believe that APA has been given full credit for the Altus deal, which will facilitate Alpine High development. Since 4Q18 they have added more derivative and basis hedges. We like the fact that APA will return free cash to shareholders before increasing planned E&D activity.</p> <p>Stephens wrote that the Company’s fourth quarter EBITDAX was “better than our/ consensus estimates, driven primarily by higher oil volumes and lower expenses,” and total production “was in-line with our/ consensus estimates.” The analyst “view[ed] the release as positive as we believe the strong 4Q18 Permian oil volumes, better-</p>

Exhibit 12

Impact Date	Event
	<p>than-anticipated 4Q19 Permian oil volumes, and an increase in '19 production guide with no change to capex offsets the higher-than anticipated 4Q18 capex and Alpine volume miss":²⁵⁶</p> <p>Apache announced 4Q18 results and provided incremental detail on '19. Total production of ~482.3 Mboepd was in-line with our/ consensus estimates though oil beat our/consensus estimate by ~3%/~2%, respectively. Capex came in ~6%/~3% higher than our/ consensus estimates, while EBITDAX was ~5%/~1% better than our/ consensus estimates, driven primarily by higher oil volumes and lower expenses (GP&T, G&A). '19 adj. production volume guide was revised to 425-440 Mboepd from 410-440 Mboepd. Our preliminary '19 production estimate is biased ~1% higher. Overall, we view the release as positive as we believe the strong 4Q18 Permian oil volumes, better-than-anticipated 4Q19 Permian oil volumes, and an increase in '19 production guide with no change to capex offsets the higher-than anticipated 4Q18 capex and Alpine volume miss (we have no concerns here, see below for incremental detail). Our estimates and price target are under review.</p> <p>KEY POINTS: Rundown/Highlights: 4Q18 oil volume beat driven by higher-than-anticipated volumes from the company's Midland/Other Delaware & North Sea assets.</p> <p>4Q18 Alpine High results came in ~15% below our forecast (fieldwide shut ins, completion deferrals), but '18 exit rate of ~70 Mboepd was in-line with our 1Q19 expectation (APA guided 1Q19 Alpine volumes to 70 Mboepd). Notably, our '19 Alpine forecast is biased ~3% higher and is toward the low-end of company guide (85-90 Mboepd).</p> <p>Company guided 1Q19 adj. volumes to 425 Mboepd. Preliminarily, our estimate is biased fractionally higher though our Permian outlook (excl. Alpine) of ~174 Mboepd is biased ~1% lower.</p>

²⁵⁶ Stephens, "Apache Corporation, First Look: 4Q18 Results & Incremental '19 Guide," February 28, 2019.

Exhibit 12

Impact Date	Event
	<p>Preliminarily, our '19 operating expenses are biased ~1% lower while our cash margin is biased ~2% higher. Notably, our '19 adj. EBITDAX is biased ~2% higher.</p> <p>Our 4Q19 Permian oil outlook is biased 2%+ higher.</p> <p>At strip, we are modeling APA generates \$300+ mil. in FCF.</p> <p>Wolfe wrote that “APA reported a mixed 4Q18 with Permian oil beating expectations while total U.S. and Alpine High volumes missed and capex again came in high.” The analyst also noted that the Company’s fourth quarter CFPS was in-line with its estimate but short of consensus. Wolfe commented that “[t]he bottom end of the 2019 volume range was ... bumped, but we’re stuck on the 2020-21 commentary that suggests FCF is unlikely unless WTI is over \$55/bbl”:²⁵⁷</p> <p>L-T Outlook Is Our Focus. APA reported a mixed 4Q18 with Permian oil beating expectations while total U.S. and Alpine High volumes missed and capex again came in high. The bottom end of the 2019 volume range was also bumped, but we’re stuck on the 2020-21 commentary that suggests FCF is unlikely unless WTI is over \$55/bbl. This is likely due to Alpine High natural gas being the largest growth driver, but the outlook is still challenging vs. peers that are pushing cash flow breakeven levels below \$50/bbl. Underperform.</p> <p>Results. APA reported 4Q18 CFPS of \$2.17, inline with our \$2.18, but trailed the Street’s \$2.25. 4Q18 total production of 421mboepd, excluding Egypt non-controlling, was inline with guidance and up 5% Q/Q. 4Q18 upstream capex of \$823mm was above the guidance and Street \$800mm.</p> <p>2019 Production Tweaked Up. After releasing its initial 2019 outlook in early February, APA tonight tightened its production range to 425-440mboepd vs. its prior range of 410-440mboepd. Initial 1Q19 guidance calls for volumes to grow 1% Q/Q, as Alpine High volumes in the quarter are expected to be flat at 70mboepd vs. YE18 exit levels, before ramping over the course of 2019 to average 85-90mboepd, putting added execution risk on 2H19 performance.</p>

²⁵⁷ Wolfe Research, “Apache Corp., Hoping For More From The L-T Outlook,” February 27, 2019.

Exhibit 12

Impact Date	Event
	<p>Incremental L-T Color. APA also provided 2020-21 capex commentary, noting that it plans to spend \$2.5-2.8bn in each year. At this level, APA will deliver “attractive growth” but will be cash flow neutral at \$50-55 WTI. We see this as the focal point of the update as we want to know what attractive growth is, how growth will be balanced between Alpine High and the rest of the portfolio, and what can be done to reduce breakeven pricing.</p> <p>Returning Cash/Asset Sales. APA reiterated the commitment to return 50% of excess cash above plans to shareholders. At current strip pricing, FCF is on the table for 2019, but the biggest ability to put cash on the balance sheet looks to be asset sales, so we look for an update here. We’re also curious how the remainder of potential FCF will be utilized as well.</p> <p>Following the Company’s disclosures on February 27 and 28, 2019, according to Bloomberg, the average of analysts’ price targets for Apache stock decreased to \$36.64 from \$37.18, or -1.44%. All 32 analysts who published investment ratings for the Company both before and after the earnings announcement maintained their ratings. (See Exhibit 5C.)</p> <p>Remark: Given the mix of information disclosed, including that: (i) the Company’s “pre-released 2019 outlook remov[ed] much of the drama” from the announcement;²⁵⁸ (ii) the Company had “a disappointing quarter from Alpine High”;²⁵⁹ and (iii) “the only update [to Apache’s 2019 guidance] is an upward movement to the midpoint of</p>

²⁵⁸ Simmons Energy, A Division of Piper Jaffray, “Apache Corporation, Q4’18 Quick Look: Permian Oil Beat; FY19 Vol Guide Raised,” February 28, 2019, 9:02 AM. *See also, e.g.*, BMO Capital Markets, “Apache, 4Q Oil Better, but on Higher Capex; 2019 Production in Line,” February 27, 2019, 7:34 PM; Scotia Howard Weil, “Apache Corporation, 4Q18 EBITDAX In Line; Minor Tweaks to 2019 Production Outlook,” February 28, 2019, 7:33 AM.

²⁵⁹ JP Morgan, “Apache Corp, 4Q18 Flash: Permian Oil Beat and 2019 Guidance Bump; Stock Reaction-Positive - ALERT,” February 27, 2019, 8:30 PM. *See also, e.g.*, Evercore ISI, “Apache, In Line Q, Adapting to the environment with knock on effects,” February 28, 2019, 10:06 AM; Stephens, “Apache Corporation, First Look: 4Q18 Results & Incremental ’19 Guide,” February 28, 2019; Wolfe Research, “Apache Corp., Hoping For More From The L-T Outlook,” February 27, 2019.

Exhibit 12

Impact Date	Event
	production,” ²⁶⁰ the statistically insignificant Company-specific return on February 28, 2019 is consistent with that expected in an efficient market.
5/2/2019	<p>After market close on Wednesday, May 1, 2019, the Company announced its first-quarter 2019 financial results. For the quarter, Apache reported production of 503 mboe/d, revenue of \$1.65 billion, EPS loss of -\$0.12, and adjusted EPS of \$0.10.²⁶¹</p> <p>The consensus estimates of the Company’s revenue and adjusted EPS were \$1.66 billion and \$0.12, respectively.²⁶²</p> <p>John J. Christmann IV, Apache’s chief executive officer and president, commented on the Company’s results:²⁶³</p> <p style="padding-left: 40px;">Apache had an excellent first quarter with strong execution, well performance and delivery against our production and capital guidance. We exceeded both our U.S. and international production guidance on a lower than expected capital budget.</p> <p style="padding-left: 40px;">In the Permian Basin, we grew 5 percent quarter over quarter and maintained oil production near fourth-quarter levels, despite placing one of our two completion crews on a frac holiday for the entire first quarter. At Alpine High, where we also had a relatively low number of completions, production was up significantly from the fourth quarter and was in-line with our guidance of 70,000 BOE per day.</p>

²⁶⁰ Scotia Howard Weil, “Apache Corporation, 4Q18 EBITDAX In Line; Minor Tweaks to 2019 Production Outlook,” February 28, 2019, 7:33 AM. *See also, e.g.*, Bank of America Merrill Lynch, “Apache Corp, 4Q18 earnings recap: headline beat on Egypt tax; outlook still anchored on gas,” February 28, 2019, 6:30 AM; Macquarie Research, “Apache Corp, Permian Oil Beat but Quarter comes with Noise,” February 27, 2019, 8:36 PM; Seaport Global, “Apache Corp., Q4 First Look: 2% Oil beat; 2% FY19 production guidance raise,” February 27, 2019.

²⁶¹ Apache News Release, “Apache Corporation Announces First-Quarter 2019 Financial and Operational Results,” May 1, 2019. *See also* GlobeNewswire, “Apache Corporation Announces First-Quarter 2019 Financial and Operational Results,” May 1, 2019, 4:49 PM.

²⁶² Reuters, “Apache Corp reports results for the quarter ended in March - Earnings Summary,” May 1, 2019, 5:20 PM.

²⁶³ Apache News Release, “Apache Corporation Announces First-Quarter 2019 Financial and Operational Results,” May 1, 2019.

Exhibit 12

Impact Date	Event		
	International production grew 6 percent compared to the fourth quarter and benefited from high facilities uptime across our operations, strong early production rates from two new wells in the North Sea, and a continuation of good results from our revamped waterflood program in the Forties Field		
	The Company also provided updated 2019 guidance and provided second quarter 2019 guidance, as follows: ²⁶⁴		
	2019 Guidance		
	Daily Production (mboe/d)	Previous	Updated
	United States	295 - 305	290 - 300
	International	190 - 200	195 - 200
	Reported Production	485 - 505	485 - 500
	Less: Egypt Tax Barrels	25 - 28	29
	Less: Egypt Noncontrolling Interest	35 - 37	36
	Total Adjusted Production	425 - 440	420 - 435
	Alpine High	85 - 90	75 - 80
	<u>Estimated Product Mix: Oil/NGLs/Natural Gas</u>		
	United States	37% / 25% / 38%	37% / 26% / 37%
	International (adjusted)	70% / 2% / 28%	70% / 2% / 28%
	<u>Income Statement Items</u>		
	Upstream Lease Operating Expenses (per boe)	\$7.50 - \$7.75	\$8.00
	Gathering, Processing and Transmission (millions)	\$400	\$400
	DD&A (per boe)	\$14.25	\$14.25
	Cash Exploration Costs (millions)	\$85 - \$95	\$100
	General and Administrative Expenses (millions)	\$450	\$450

²⁶⁴ Apache News Release, “Apache, First-Quarter 2019, Financial and Operational Supplement,” May 1, 2019.

Exhibit 12

Impact Date	Event
	<div> <div>Financing Costs (millions)</div> <div>\$400</div> <div>\$400</div> </div> <div> <div>North Sea Current Tax Expense (millions)</div> <div>\$220</div> <div>\$240</div> </div>
	<div> <div>Quarterly Guidance</div> <div>2Q 2019 Guidance</div> </div> <div> <div>Production (mboe/d)</div> <div>United States</div> <div>260</div> <div>International (Adjusted)</div> <div>132</div> <div>Total Adjusted Production</div> <div>392</div> <div>Alpine High</div> <div>45 - 55</div> </div> <div> <div>Upstream Capital Investments (millions)</div> <div>\$650 - \$700</div> <div>Upstream Lease Operating Expenses (per boe)</div> <div>\$8.70</div> <div>Gathering, Transmission, Processing (millions)</div> <div>\$90</div> <div>Cash Exploration Costs (millions)</div> <div>\$40</div> <div>General and Administrative Expenses (millions)</div> <div>\$120</div> <div>North Sea Current Tax Expense (millions)</div> <div>\$70</div> <div>North Sea Cash Taxes Paid (millions)</div> <div>\$0</div> </div> <div> <div>Christmann commented on the Company's guidance:²⁶⁵</div> <div> <div>We previously stated Apache's commitment to returning at least 50 percent of our incremental cash generation from all sources to investors, before increasing our planned activity set. In keeping with this commitment, our 2019 planned capital activity and budget remains unchanged, and we will begin returning incremental cash to investors in the coming months. This is of course in addition to our current regular dividend.</div> <div>In summary, 2019 is progressing very well. Overall production was strong in the first quarter, and we are demonstrating excellent capital discipline and cost control. The North Sea and Egypt</div> </div> </div>

²⁶⁵ Apache News Release, "Apache Corporation Announces First-Quarter 2019 Financial and Operational Results," May 1, 2019.

Exhibit 12

Impact Date	Event
	<p>continue to deliver robust free cash flow with their leverage to premium Brent crude prices and higher natural gas and NGL netbacks. In the Permian, we are poised to deliver attractive oil growth and a substantial cash flow uplift at Alpine High in the second half of the year. We will also be advancing our differential exploration initiatives, most notably in Suriname.</p> <p>Our strategy remains the same – we will fund an activity level and investment program capable of delivering long-term returns and sustainable growth while living within cash flow at reasonable oil prices and returning capital to investors</p> <p>The Company held a conference call with investment analysts the following morning. During the call, Christmann announced the sale of assets worth \$300 million:²⁶⁶</p> <p>With the success of our organic growth and exploration program, we find ourselves with some assets in the portfolio that we do not envision funding over the next several years. These assets will be more valuable in the hands of different owners. Accordingly, we recently entered into sales agreements totaling approximately \$300 million, most of which is related to an exit of the SCOOP/STACK, which will close in the second quarter.</p> <p>Bank of America Merrill Lynch wrote that the Company’s adjusted EPS was short of its estimate and consensus “with production ahead of guidance offset by weak realizations (NGLs).” The analyst “s[aw] 1Q19 as operationally solid despite near term concerns over Permian gas takeaway with management remaining committed to return at least 50% of incremental cash flow before raising activity.” BofAML commented that Apache’s “2Q production is expected to fall by ~2% ... mainly on planned deferrals at Alpine High”:²⁶⁷</p> <p>Results look largely in-line</p>

²⁶⁶ Thomson Reuters, *StreetEvents*, “APA – Q1 2019 Apache Corp Earnings Call, EVENT DATE/TIME: MAY 2, 2019 / 3:00PM GMT,” May 2, 2019, 11:00 AM.

²⁶⁷ Bank of America Merrill Lynch, “Apache Corp, 1Q19 earnings recap: in line, curtailments underline the difficulty of growing gas,” May 1, 2019, 10:51 PM.

Exhibit 12

Impact Date	Event
	<p>We see adj. EPS of \$0.10 as broadly in-line (consensus & BofAML \$0.12 & \$0.11) with production ahead of guidance offset by weak realizations (NGLs). Production (ex Egypt tax barrels) of 437 Mboe/d topped guidance (425 Mboe /d), mainly on strong North Sea output, which achieved the highest levels in two years (66,000 boepd). The FY \$2.4bn budget is unchanged with a 4Q18-4Q19 growth target of 6%-10% comprising 12-16% in the US and 5% for Permian oil. Note this includes Alpine High gas curtailments due to weak Waha gas prices. Capex is trending below its FY budget based on 1Q19 capex of \$597mm that fell below guidance (\$625mm). However, spending is projected to trend higher in 2Q (\$650-\$700mm). All-in-all, we see 1Q19 as operationally solid despite near term concerns over Permian gas takeaway with management remaining committed to return at least 50% of incremental cash flow before raising activity.</p> <p>Economics for cryo plants helps Alpine high disclosure 2Q production is expected to fall by ~2% (420-435 Mboepd) mainly on planned deferrals at Alpine High (we estimate ~200mmcf/d); Permian oil is expected to be impacted by ~2 Mbopd with 1 o/o 2 completion crews on a ‘frac holiday’ while international volumes are expected to decline by ~13 Mboepd to 132 Mboepd as seasonal North Sea maintenance begins. New this quarter is that management has provided notional economics for its three Cryo plants expected online ratably over the balance of the year: Assuming \$60 WTI / \$2.80 HH / NGL pricing of 40% WTI, Apache Corp (ticker: APA) estimates one plant will generate annual cash flow of \$135-\$165mm, with every \$2/bbl change in NGL pricing impacting CF by \$10-12mm. This compares with no material cash flow from current Alpine High production.</p> <p>Reiterate Underperform: watch for updates on Suriname Our Underperform rating on APA primarily reflects a negative rate of change we see from a portfolio shifting to US gas over time. In our view, a material reset in APA’s outlook requires a greater mix of oil growth – and with this in mind, we look for color on APA’s planned drilling campaign in Suriname where it has secured the Noble Sam Croft drillship to drill its first well in June. Otherwise, a reset in acreage / exploration in Egypt has potential to reset APA’s outlook – but this remains long dated.</p>

Exhibit 12

Impact Date	Event
	<p>Barclays wrote that the Company “met or exceeded production guidance but beat on capex” during the first quarter. The analyst remarked that Apache “guided 2Q’19 adjusted production to ... 10% below reported 1Q’19 adjusted production” but “only reduced FY’19 adjusted production guidance by 5 MBOE/d, or 1% at the mid-point”.²⁶⁸</p> <p>One of the most prominent themes so far this earnings season is better than expected efficiencies pulling forward activity, which has been a double edge sword. Given today’s capital discipline narrative, despite this actually being a good thing from an operational standpoint, running ahead of schedule poses asymmetric risk as being more efficient pulls forward both production (beats) and capex (misses). Thus far the market has been far more punitive on capex misses than it has been on rewarding the corresponding production beats. CXO, CLR, and DVN all cited pulling forward activity as contributing to Q1 production beats. Nonetheless, CXO and CLR meaningfully underperformed on earnings day largely due to their Q1 capex misses. Last night’s APA and MRO prints buck the trend. Both companies met or exceeded production guidance but beat on capex. APA and MRO cited good well performance as the primary reason for the production beats (not pulling forward activity/timing) and well cost reductions drove the capex beats. This is encouraging. We are adding another earnings theme to our Q1 list (see our 5/1/19 note: CXO: Q1’19 EBITDAX Beats; 3 Development E&P Earnings Themes), which is mgmt. teams getting put under the microscope during Q&A on earnings calls regarding their commitment to maintain FY ’19 capex budgets in a variety of “but what if” type scenarios. If Q&A today goes anything like our IR calls last night, APA and MRO will pass with flying colors. See below for brief summaries of the APA and MRO Q1 prints.</p> <p>APA: Q2’19 Guidance Below 1Q’19 on Alpine Shut-ins, North Sea Lull Management guided 2Q’19 adjusted production to 392 MBOE/d, or 10% below reported 1Q’19 adjusted production of 437 mboe/d due to Alpine high shut-ins (250mmcf/d gross) and natural decline from recently completed North Sea wells. Alpine High shut-ins, a portion of which will be brought back online during 2Q in conjunction with 1st cryogenic processing facility start-up, will remain a swing factor depending Waha natural gas prices until 4Q’19. Despite the QoQ</p>

²⁶⁸ Barclays, “Apache Corporation / Marathon Oil Corporation, APA/MRO Avoid the Q1 Double Edge Sword,” May 2, 2019, 1:17 AM.

Exhibit 12

Impact Date	Event
	<p>decline and continued Alpine High shut-ins in Q3'19, APA only reduced FY'19 adjusted production guidance by 5 MBOE/d, or 1% at the mid-point.</p> <p>Q2'19 capex guidance of \$675mm (midpoint) is above the Q2-Q4 average quarterly run-rate of \$601mm and reflects Suriname offshore drilling and Alpine High lease extension payments. APA reiterated the FY'19 capex budget of \$2.4bn.</p> <p>BMO wrote that “Apache reported better 1Q19 production (BOEs/oil), with EPS/EBITDAX near consensus estimates, while capex was below guidance.” The analyst commented that the Company’s “[p]roduction [guidance] in 2Q19 was below our expectations” but “Apache’s 2019 outlook is little changed.” BMO commented that “[n]et-net, we see the update as mixed as lower 2Q-3Q Permian Oil/International volumes offset a better 1Q19”.²⁶⁹</p> <p>Bottom Line: Apache reported better 1Q19 production (BOEs/oil), with EPS/EBITDAX near consensus estimates, while capex was below guidance. Production in 2Q19 was below our expectations, with the difference being Permian oil and International, while Alpine High curtailments were as expected. That said, Apache’s 2019 outlook is little changed excluding a 1.6% reduction to U.S. volumes on Alpine curtailments. Net-net, we see the update as mixed as lower 2Q-3Q Permian Oil/International volumes offset a better 1Q19.</p> <p>Key Points 1Q19 Vols Beat on Higher International, Capex in Line. Apache reported 1Q19 EPS of \$0.10 versus our/consensus \$0.11/0.12. EBITDAX, net MI, of \$1,005mm was below our \$1,088mm, but above consensus of \$990mm. Production of 503MBOED was above our/consensus 501/495MBOED, while adjusted production of 437MBOED beat guidance (425MBOED). Oil of 255MBOD was in line with our 256MBOD estimate, but above consensus (250MBOD). Egypt (+6% Q/Q) and North Sea (+4% Q/Q) oil production drove upside vs. guidance (called for flat Intl), while Permian oil was down 1% Q/Q (one of two frac crews on holiday in 1Q) and Alpine High met guidance (70MBOED). Lower oil and NGL realizations (gas in line) versus</p>

²⁶⁹ BMO Capital Markets, “Apache, 1Q19 Vols Better With Capex in Line; 2019 Trimmed on Alpine Curtailments,” May 1, 2019, 8:39 PM.

Exhibit 12

Impact Date	Event
	<p>our model contributed to lower EBITDAX. Upstream capex of \$597mm (25% budget) was below guidance (\$625mm), while Altus outflows totaled \$237mm.</p> <p>2019 Production Trimmed on Alpine Curtailments, 2Q19 Below Expectations. Apache's 2019 outlook was little changed, despite lowering U.S. production by 5MBOED (1.6%) due to previously announced 2Q-3Q19 Alpine High curtailments. Alpine High guidance is now 45-55MBOED in 2Q19 (vs. 51MBOED BMOe) and 85-95MBOED in 3Q19 (vs. 64MBOED BMOe), before recovering to >100MBOED in 4Q19 as Gulf Coast Express comes into service. Permian oil and International 2Q-3Q19 guidance was weaker than we modeled due to 1Q Permian frac holiday (2Q19 oil down 2%), and North Sea downtime. Net-net, 2Q19 U.S. production guidance of 260MBOED is below our 269MBOED (Alpine High in line), while adjusted International of 132MBOED also missed our 137MBOED. Upstream capex for 2Q19 of \$650-700mm meets our \$685mm estimate despite being an increase from 1Q19. Apache also announced agreements for \$300mm of asset sales, while noting that it is working on additional monetizations.</p> <p>Cowen wrote that the Company “turned in a strong 1Q” as production topped consensus, DCPS “beat,” and capex was “a positive surprise.” The analyst commented that Apache’s second quarter production was “[l]ight” and the Company “tweaked total adjusted production [for 2019] down 1% led largely by a 12% reduction in Alpine High volume”.²⁷⁰</p> <p>APA turned in a strong 1Q with vols of 503 MBOED 3% above the street and oil vols 2%+, driving a 2% DCPS beat. Capex was also a positive surprise, trending 6% below ests. Intl oil vols surprised by 5% and while exit rate growth guidance was reiterated at 8% YoY, 2Q/3Q Intl vols are guided 6% below our model, creating a more back-end loaded profile than expected.</p> <p>Staying Committed to Shareholder Returns. APA importantly reiterated its intention to return 50% of incremental capital to shareholders and expects to do so in short order as FCF accumulation is anticipated in 2Q. APA also cited \$300m in asset sales in 1Q.</p>

²⁷⁰ Cowen, “Apache Corporation, APA 1Q19 Quick Take,” May 1, 2019.

Exhibit 12

Impact Date	Event
	<p>International Surprises Help 1Q. 1Q19 international volumes were 6% above our model and 5% above on oil alone as Egypt benefitted from new Western Dessert successes that tested at 4-5.2 MBD in addition to 3 new wells at the East Bahariya Extension that peaked at 4.5 MBD total. North Sea also showed 5% Q-Q growth from the new Callater well and continued Garten flow. However, Intl is guided down 9% in 2Q and 7% in 3Q from seasonal impacts and well timing.</p> <p>Guidance largely Maintained. 2Q Light. APA reiterated its \$2.4bn capex budget and effectively tweaked total adjusted production down 1% led largely by a 12% reduction in Alpine High volume guided that reflect the previously announced 2Q shut in's that are guided to continue through 3Q, but improve as expected with Cryo plants coming on-line in May. 2Q19 adjusted production guidance of 392 MBOED is in-line with model as Capex for 2Q is targeting \$675m, roughly 10% above our model.</p> <p>Credit Suisse wrote that the Company's adjusted EPS and CFPS were below its estimates and consensus "despite [an] oil beat." The analyst noted that "[d]espite the 1Q production beat, APA reduced the high-end of its 2019 'reported' volume guidance," and second quarter guidance "implied a ~9% sequential drop." Credit Suisse "lowered 2019-21 CFPS estimates by ~5% on the 1Q miss, reduced production, and higher per-unit costs," and cut its price target for the Company to \$33 from \$37.²⁷¹</p> <p>1Q EPS/CFPS light despite oil beat. Clean EPS/CFPS of \$0.10/\$1.76 was below consensus' \$0.12/\$1.92 & CSe \$0.22/\$2.07 primarily on much higher current taxes & weaker NGL realizations; however, EBITDX did exceed consensus by 6%. Volumes of ~503 MBoed (+14% YoY) were 3% above consensus/CSe ~490 MBoed, with oil volumes of ~255 MBbld 2-3% above expectations. APA generated a ~\$175MM organic E&P FCF deficit in 1Q.</p> <p>Adjusts 2019 volume guidance but overall little changed; maintains budget. Despite the 1Q production beat, APA reduced the high-end of its 2019 "reported" volume guidance by 5 MBoed to 485-500 MBoed (still +6% YoY) as it cut Alpine High guidance by ~11% (to 75-80 MBoed)</p>

²⁷¹ Credit Suisse, "Apache Corporation, Still Waiting for FCF Inflection; Trimming Ests," May 2, 2019.

Exhibit 12

Impact Date	Event
	<p>due to the natural gas shut-ins triggered by severe Waha Hub gas price weakness. Overall, APA trimmed its US volume growth guidance from ~15% YoY (295- 305 MBoed) to ~13% YoY (290-300 MBoed). Meanwhile, this US reduction was partly offset by a slight boost to its international production guidance to 195-200 MBoed (vs. 190-200 MBoed prior). APA maintained its 2019 upstream capex budget of ~\$2.4bn, which we estimate should enable an organic E&P FCF surplus (after dividend) of >\$700MM at current strip prices.</p> <p>Other key takeaways: 1) 2Q production guidance of 459 MBoed (well below consensus/CSe of 484/488 MBoed) implies a ~9% sequential drop due to a 30% QoQ plunge in Alpine High volumes to 45-55 MBoed; however, volumes in the play should ramp back up to 85-95 MBoed in 3Q and >100 MBoed in 4Q19 (unchanged from prior); 2) no change to 2019 exit rate guidance (total +6-10% YoY, US +12-16% YoY, and Permian oil +5% YoY) which infers shut-ins should have little impact on its 2020 outlook; 3) no formal Suriname update but we'd note it has contracted the Noble Sam Croft drillship to spud first well around mid-year; and 4) we lowered 2019-21 CFPS estimates by ~5% on the 1Q miss, reduced production, and higher per-unit costs.</p> <p>Fully valued vs. peers. Our \$33 TP (was \$37) is based on ~6.0x normalized 2019E DACF. Risks: Permian gas diffs, Alpine High execution.</p> <p>Evercore wrote that the Company's total first quarter production was "above our/street estimates," cash flow was "light," and costs "came in below expectations." The analyst observed that the "reduction in [Apache's 2019] production guidance was driven by the reduction in yearly Alpine high volumes." Evercore commented that "[t]he collapse of Waha pricing (likely to persist until infrastructure starts in 3Q/4Q) and questions surrounding incremental funding at ALTM ... have proven a setback for street expectations".²⁷²</p> <p>Bumps on the road to Alpine High. Our focus at APA has been the imminent pull through of volumes and (hopefully) margin from Alpine High as the last 2+ years of investment pivots to production. The collapse of Waha pricing (likely to persist until infrastructure starts in 3Q/4Q)</p>

²⁷² Evercore ISI, "Apache, 1Q19 Puts & Takes," May 2, 2019, 10:52 AM.

Exhibit 12

Impact Date	Event
	<p>and questions surrounding incremental funding at ALTM (signaled additional funding imminent in 1Q release) have proven a setback for street expectations here. That said, the stock has worked YTD as the strategy is definitively on theme (upstream spending within cash flow, excess cash flow directed towards shareholders) and we would not underestimate the impact of growing expectations surrounding the 2019 exploration campaign in Suriname in a sector that has been bereft of material exploration opportunities. Call us conservative but we would still like to see the pull through of Alpine volumes in 2H and clarity on the ~\$1.7 Bn of midstream funding commitments. Maintain In-Line</p> <p>1Q Results, Volume beat, Cash Flow light, modest adjustments to guidance: APA reported total 1Q19 production of 502.9 mboe/d (incl. NCI), above our/street estimates of 487.1/487.3 mboe/d, mostly driven by higher International and NG production. Total US production of 291.7 mboe/d was above our 287.7 mboe/d estimate (US oil at 109 mbpd vs our 112 mbpd), while international volumes were at 162.7 mboe/d, 7.8 mboe/d above with our estimates. O&G revenues of \$1.65 bn were above our expectations (\$1.57 bn) as higher than expected realizations drove the beat. Costs came in below expectations driven by lower Transportation and SG&A costs (LOE and Production taxes were mostly in line). During the quarter, APA incurred costs of \$744 mm (E&P capex) vs our/ street estimates of \$725/\$746. Adj. CFPS of \$2.14 was ~5% above our \$2.03 estimate. APA maintained previously issued 2019 Upstream Capital guidance of \$2.4 Bn however, the company decreased total adj production guidance to 427.5 mboe/d (at midpoint and implying a ~1% decrease). The reduction in production guidance was driven by the reduction in yearly Alpine high volumes from 87.5 mboe/d to 77.5 mboe/d (after previously announced deferral of volumes in response to Waha price weakness) and offset by the increase in international guidance from 195 mboe/d to 197.5 mboe/d (at midpoint).</p> <p>Alpine High: Due to WAHA price weakness, APA intends to temporarily defer dry gas production from Alpine High. APA expects the majority of impact to occur in the 2Q/3Q19. D&C'd 17 gross operated wells with 5 rigs/1 frac crew in operations during 1Q.</p> <p>Permian: oil production decreased modestly in 1Q, placed 22 wells online (vs.40 in 4Q18) and operated 9 rigs/1 frac crew.</p>

Exhibit 12

Impact Date	Event
	<p>North Sea: Reported production of 66 mboe/d (highest since 4Q16) in 1Q19 and completed 4 net wells. The company expects first production from Storr in late 4Q19 and plans to spud the second Garten well in 2H19.</p> <p>Egypt: APA's net production avg'ed 79 mboe/d as the company D&C'd 22 net wells while operating 10 rigs.</p> <p>What to look for on the call?</p> <p>Alpine High: With 2Q/3Q Waha production deferrals now expected look for clarity on the development plan for 2019 and what indicative price (or date on the calendar) should be expected to re-activate activity. ALTM reduced gathering volume guidance to 500-550 mmcf/d vs. 525-575 mmcf/d (still 65% rich gas). ALTM continues to pursue additional funding (needed to access an expanded revolver capacity) in order to address the combination of infrastructure build out and the exercise of equity options on long haul pipelines. Cryo unit 2 is expected to be commissioned in June with full operations in July, and unit 3 in 4Q.</p> <p>Permian oil. Achieving 98 mbo/d of oil production in 1Q and with fewer rigs /holiday frac planned in 2Q, APA forecasts ~10 mbpd of oil increase from 2Q to 4Q. Look for a discussion of the Midland basin program and set up for this return to oil growth for the balance of the year.</p> <p>Suriname: Industry sources indicate that the Noble Sam Croft (UDW rig) has been contracted for Suriname (1 well) in mid-2019. With expectations rising ahead of the planned spud (block 58) this summer, look for a discussion on the number of wells in the commitment, and the potential for sell down / farm in (APA holds block 100%).</p> <p>Commitment of returns to shareholders: APA indicated \$300 mm of assets sales under signed PSA's (a portion of Mid-Con?). With the desire to maintain cash neutrality from the upstream, APA indicated higher oil price would free up additional capital for shareholder returns. The consolidated balance sheet saw \$600 mm of net debt increase q-o-q.</p>

Exhibit 12

Impact Date	Event
	<p>Jefferies wrote that the Company “reported a 1Q19 EPS miss [versus the analyst’s estimate and consensus], but EBITDA [was] ahead of consensus driven by higher international volumes and domestic gas volumes.” The analyst noted that Apache “lowered FY19 volume guidance slightly on Alpine High curtailments in 2Q19”.²⁷³</p> <p>Mixed. APA reported a 1Q19 EPS miss, but EBITDA ahead of consensus driven by higher international volumes and domestic gas volumes. The company maintained the FY19 budget and 4Q19 exit rate growth, but lowered FY19 volume guidance slightly on Alpine High curtailments in 2Q19.</p> <p>APA Reports EPS Miss APA reported 1Q19 adj EPS of \$0.10, ahead of JEF at a \$0.07 loss but slightly below cns at \$0.12. EBITDA of \$1.05 Bn was ahead of JEF at \$993 MM and cns of \$990 MM. Variance from our estimate was driven by better international oil and domestic gas vols, and higher oil realizations, which was partially offset by higher LOE.</p> <p>Midland Basin Ops In 1Q19, APA operated six rigs (+1 vs 4Q18) and TIL’d 18 G wells in the Midland. The company noted a number of pads that were recently POP’d: an 8-well Powell pad in Upton Co, which targeted the WC and posted IP-30 rates of 999 boe/d (78% oil) on an avg lateral of 4,911’, and a 6-well Wildfire pad in Midland Co, which targeted the Spraberry and posted IP-30 rates of 1,043 boe/d (83% oil) on an avg lateral of 7,496’.</p> <p>Delaware Basin Ops APA averaged three rigs (-1 rig vs 4Q18) and TIL’d four wells in the Delaware. APA ran five AH rigs (-2 rigs vs 4Q18) and POP’d 17 wells, driving avg prod of 70 mboe/d in 1Q19 (+165% vs 4Q18). APA noted that avg D&C costs per ft were down 20% and 30%, respectively, from 2017 averages to the end of 1Q19. APA also initiated temporary natural gas production volume deferrals in late March in response to severe Waha price weakness.</p>

²⁷³ Jefferies, “Apache, 1Q19 Miss, 2019 Capex and Exit Rate Growth Reaffirmed,” May 1, 2019, 9:08 PM.

Exhibit 12

Impact Date	Event
	<p>International Ops In 1Q19, APA avg'd 10 rigs in Egypt and three rigs in the N Sea. In Egypt, APA drilled/completed 23 G/22 N wells with an 83% success rate and reported Egypt adj prod of 79 mboe/d (+7% seq). The company highlighted a number of online wells in East Bahariya extension, the strongest being the Ptah-28 in Faghur Basin (IP-30 rate of 3,957 boe/d with 91% oil). In the N. Sea, APA reported prod of 66 mboe/d (+5% seq) and drilled/completed 5 G/4 N wells. The increase in prod was due to the full quarter production from Garten, a new development well at Callater, and strong uptime on producing facilities in 1Q19.</p> <p>2019 and 2Q19 Guidance Update APA lowered FY19 production to 420-435 mboe/d (-1% at the mdpt vs prior guidance of 425-440 mboe/d) while maintaining a capex budget of \$2.4 Bn. APA also guided LOE to \$8 per boe (+5% at the mdpt vs \$7.50-\$7.75 prior), cash expl costs to \$100 MM (+11% at the mdpt vs \$85-\$95 MM prior), and cash taxes to \$240 MM (+20% vs \$200 MM prior).</p> <p>For 2Q19, APA guided production of 392 mboe/d, which came in below JEF at 423 mboe/d (-7%), as the company is shutting in ~250 MMcf/d of Alpine High production. APA guided a 2Q capex range of \$650-\$700 MM, which came in ahead of JEF at \$578 MM (+17% at mdpt) and ahead of cns at \$606 MM (+11% at mdpt).</p> <p>JP Morgan wrote that the Company's first quarter EBITDAX, upstream capex, and oil production were all better than consensus. The analyst observed that Apache "sounded confident over the future cash return to shareholders that is expected to commence in the coming months." JP Morgan's "only quibble on the quarter would be the unchanged oil production outlook despite the fact that the company plans to bring online 12 more wells in the Midland Basin".²⁷⁴</p> <p>JPM View: Stock Reaction—Positive. A strong quarter internationally, which drove a 2% oil beat relative to the STe should carry the day, particularly as upstream capex came in 5% below our forecast and 4% below consensus. The company also noted agreements for \$300mm in asset</p>

²⁷⁴ JP Morgan, "Apache Corp, 1Q19 Upside Oil + Lower Upstream Capex = Positive View - ALERT," May 1, 2019, 9:04 PM.

Exhibit 12

Impact Date	Event
	<p>sales, but details on the property sales were not disclosed. (Note: APA had two Mid-Con properties on the block as we highlight in Figure 5 and Figure 6.) Our only quibble on the quarter would be the unchanged oil production outlook despite the fact that the company plans to bring online 12 more wells in the Midland Basin than previously messaged, as APA now expects to TIL 67 wells in Midland in 2019 relative to the March and 4Q18 outlook of 55 wells. The company also plans on bringing online two extra wells in Other Delaware as well. Although this is a focal point on emphasizing capital efficiency, as APA is effectively doing more on the same capital budget, we do believe the Permian oil guide (see below) relative to our estimates on 14 greater completions is underwhelming on the surface or could reflect conservatism. Lastly, 1Q19 cash flow per share, EBITDAX, and upstream capex of \$1.96/share, \$1,050mm, and \$597mm, respectively, sits 0%, +6%, and -4% relative to Street estimates, and management sounded confident over the future cash return to shareholders that is expected to commence in the coming months. Recall the company has planned that 50% of FCF generated will be returned to shareholders.</p> <p>JP Morgan, in a later report, added that Apache “reported mixed results ... with production strength in both the international and US segments at lower than expected capital spend, partially offset by higher than expected LOE.” The analyst was “a bit concerned with management’s policy to return 50% of incremental cash generation to investors”.²⁷⁵</p> <p>Positives APA exceeded both International and US production guidance by 7,000 Boe/d and 5,000 boe/d, respectively. Alpine High production was surprisingly strong despite the company having a low number of completions in the quarter. Overall, Permian Basin volumes increased by 5% sequentially.</p> <p>FY19 is expected to see total company production up 6 to 10% with the US up 12 to 16%, and partially offset by international (detailed below).</p>

²⁷⁵ JP Morgan, “Apache Corp, 1Q19: Mixed Results, Production Above Guide But May Be Weaker in 2Q, LOE Guide Raised, Plan to Retire July Maturity,” May 2, 2019, 11:22 PM.

Exhibit 12

Impact Date	Event
	<p>Production in the North Sea of 66mboe/d reached its highest levels in two years due to contributions from Garten, a new development well at Callater and strong uptime on producing facilities.</p> <p>Altus Midstream's first two cryogenic plants are proceeding ahead of schedule with the first plant currently commissioning and expected to flow gas this month. The second plant is expected to be fully in service in July and the third plant remains on schedule for 4Q19. By YE Altus will have a total of 600mmcf of rich gas processing capacity capable of producing 60mboe/d of NGLs.</p> <p>KMI's GCX pipeline is expected to be placed in-service by the beginning of October and will add 550mcf of export capacity to Gulf Coast, which should help APA to get Gulf Coast pricing for its NGLs.</p> <p>Liquidity remains ample in our view, with \$327mm of cash on hand, ~\$4.0bn of total revolver capacity, and \$150mm of debt maturing in the next 18 months. APA recently entered into \$300mm of sales agreements, mostly for the sale of SCOOP/STACK assets which are expected to close in 2Q. Proceeds will be used to help fund the repayment of the \$150mm of debt maturing in July 2019.</p> <p>Negatives Permian oil production is projected to be down slightly in 2Q due to the completion timing with growth anticipated in the back half of the year as the number of completions increases significantly.</p> <p>***</p> <p>Bottom Line In our view, Apache reported mixed results in the quarter with production strength in both the international and US segments at lower than expected capital spend, partially offset by higher</p>

Exhibit 12

Impact Date	Event
	<p>than expected LOE. We are a bit concerned with management's policy to return 50% of incremental cash generation to investors, although some of that will be for debt reduction (namely the \$150mm maturing in 2019). We would like to see further progress on production growth in the U.S while maintaining capital discipline. We are encouraged by management's comments that the company can be FCF breakeven at mid-40s WTI although we will monitor changes in LOE, on the back of the recent upward guidance revision. The company maintains ample liquidity and when it comes down to it we expect management will remain conservative and maintain their prudent balance sheet management. We remain Neutral at current levels, as spreads appear fair relative to similarly-rated peers. Risks to our rating include significantly higher or lower commodity prices, execution risk, and potential M&A.</p> <p>MUFG wrote that the Company's adjusted EPS was short of its estimate and consensus, EBITDAX "came in near" the analyst's estimate and beat consensus, production was "higher than guidance both domestically and internationally" but "was offset by light realizations." MUFG noted that the Company's "[g]uidance remained intact" and "[a]lso intact is management's plan to return 50% of any free cash flow back to the investor":²⁷⁶</p> <p>Investment Highlights: APA's 1Q2019 results beat on a couple of metrics with production higher than guidance both domestically and internationally. Cash costs were inline with our estimate and EBITDAX was relatively in line as well, the production beat was offset by light realizations. Guidance remained intact even with the company deferring dry natural gas production in response to the low natural gas prices in west Texas. Also intact is management's plan to return 50% of any free cash flow back to the investor. Since debt reduction is under that banner we are estimating about \$150 million available for 2019. This equates to a yield of 1.4% which might not be enough to draw the incremental investor. However we this number rising to 4.8% in 2020 which is quite competitive within the peer group.</p> <p>Given all of the above, we are maintaining the per share price target at \$45 and our Overweight rating. Our estimates for 2019 express an EV/EBITDAX multiple of 5.0x which is a discount to</p>

²⁷⁶ MUFG, "Apache Corp., Turning A Corner Cryogenically in the Second Half?," May 2, 2019.

Exhibit 12

Impact Date	Event
	<p>the group average of 6.0x. We view the discount as justified until we see substantive production numbers from its Alpine High play.</p> <p>Key Points 1Q19 Earnings: APA reported an adjusted net gain of \$0.10 per share for the quarter, short our estimate of \$0.16 per share and the consensus estimate of \$0.12 per share. Reported adjusted EBITDAX of \$1,050 million came in near our \$1,079 MM estimate, and beat the \$990 MM consensus estimate. Oil production surprised to the upside relative to guidance and total reported production of 503 MBOE/d beat our 499 MBOE/d estimate, and the Street's 490 MBOE/d estimate. Adjusted production (Ex-Egypt noncontrolling interest) of 438 MBOE/d also beat our estimate of 426 MBOE/d.</p> <p>The \$597 MM in upstream capital the company posted in 1Q19 was below guidance and our estimate of \$776 MM, it was also on trend with annual guidance of ~\$2.4 B. The amount of wells drilled and completed in 1Q19 appears slightly below trend which is something to keep an eye on.</p> <p>Operations and Outlook: Antero reiterated 2019 production guidance of 6 to 10% from 4Q2018 to 4Q2019, and upstream capital program of \$2.4 billion. APA operated 16 rigs on average (down 2 sequentially) in the U.S. onshore with the Permian basin averaging 14 (six rigs in the Midland, three in the Delaware, and five at Alpine High). In 1Q19, only 34 net wells were drilled and completed in the basin, down from the 65 wells in 4Q18 as well as the 45 wells completed in 1Q18. Still, overall production of 248 MBOE/d during 1Q19 was 5% higher sequentially.</p> <p>Piper Jaffray wrote that the Company's free cash flow was better than its estimate "driven by a modest CFO beat ... on higher volumes ... with unit cash costs/realizations marginally better than expected." The analyst commented</p>

Exhibit 12

Impact Date	Event
	<p>that the Company provided “an underwhelming 2Q/3Q production outlook” despite a “FY19 production outlook [that was] largely unchanged”:²⁷⁷</p> <p>Solid 1Q result from APA as a beat on International oil volumes and lower capex drove higher FCF than expected (\$139mm pre-NCI vs. SE \$89mm). And despite an underwhelming 2Q/3Q production outlook (Permian frac holiday and gas deferrals), 2019 exit rate was reiterated, and the upcoming well in Suriname is likely to hold investor interest in the meantime. Positives: 1) FCF Beat, 2) Lower 1Q capex, 3) FY19 production outlook largely unchanged, 4) Secured sale agreements for \$300mm in non-core disposals (US). Negatives: 1) LOE trending higher, 2) 2Q Permian oil light.</p> <p>Updated Alpine High Outlook In-line: Well-telegraphed gas deferrals are expected to reduce the FY19 target for Alpine High by 10 Mboe/d to a mid-pt of 77.5 Mboe/d, but the FY19 exit rate target of > 100 Mboe/d was re-affirmed. We look for updated management thoughts on mitigating Waha pricing weakness and on the updated production trajectory for the Alpine High and the role of cryogenic plant(s) build-out and incremental gas takeaway projects (GC Express, Permian Highway, etc.) in framing expectations into 2020. Also look for management to speak to implications for Altus Midstream (MVCs) as the deferrals are expected to be cash flow accretive to APA.</p> <p>1Q Permian Oil In-Line But Outlook Mixed (2Q Light; Exit Rate Maintained): Permian oil volumes of ~98 Mb/d were in-line with SE. And while (as expected) the outlook for 2Q production was revised lower on the announced deferrals of Alpine High natural gas, the miss (392 Mboe/d vs. adj SE est of 400 Mboe/d) was driven chiefly by lower than expected Permian oil production (~5 Mb/d delta vs. SE) as the timing headwinds associated with 1Q’s frac holiday is expected to drive a 2Mb/d QoQ sequential decline in Permian oil. Nevertheless, APA is maintaining its 5% growth in Permian oil volumes by 4Q19 (YoY). Look for implications to the</p>

²⁷⁷ Simmons Energy, A Division of Piper Jaffray, “Apache Corporation, Q1’19 Quick Look: Solid Result, While Market Waits on Suriname,” May 1, 2019, 8:37 PM.

Exhibit 12

Impact Date	Event
	<p>2020 outlook following the 2H drawdown in DUCs (67/55 Midland wells to be brought online/drilled in FY19).</p> <p>FCF Beats on Qtr; FY19 Budget Maintained But Opex Rises: APA FCF of \$139/\$29mm pre/post Egypt NCIs came in above SE est \$89/(-\$26)mm resp driven by a modest CFO beat in the Qtr (3% vs SE) on higher volumes (437 vs. SE of 428 Mboe/d) with unit cash costs/realizations marginally better than expected (\$0.30/\$0.12/boe resp). Look for mgmt clarity on the call on the 1Q miss on LOE (\$8/boe vs. SE/guide of \$7.75/boe) and the drivers of the ~5% increase to the FY19 LOE guide (to \$8/boe) despite a FY19 production outlook largely unchanged. We see management attributing the higher than expected outlook for 2Q capex (\$675 vs. SE of \$600mm) to the upcoming Suriname well and likely represents a peak in the FY19 budget.</p> <p>Int'l Volumes Beats But No FY19 Raise: Better than expected international volumes (145 vs. SE of 138 Mboe/d) in 1Q drove the bulk of the 1Q volume beat (~80%) on better uptime and productivity in the UK where North Sea volumes hit the highest mark in 2 yrs and drove a modest increase to the FY19 outlook; however, FY19 adjusted net volumes are expected in-line with the prior target (~132.5 Mboe/d) as better 1Q productivity is expected to be mostly offset by increased tax bbl headwinds in Egypt given the commodity's recovery.</p> <p>RBC wrote that the Company's adjusted production exceeded guidance but adjusted EPS was below the analyst's estimate and consensus, while CFPS equaled consensus and was above the analyst's estimate. RBC observed that "APA slightly reduced its 2019FY production guidance range" and second quarter guidance was lower than the analyst's estimate.²⁷⁸</p> <p>Our view: We think this is a neutral result overall. The company is maintaining its development plan but has (as previously announced) curtailed production in Alpine High. Management also highlighted that at current oil prices the FCF first priority is to deliver at least 50% of incremental cash (from all sources) back to investors. APA also announced \$300 million of new</p>

²⁷⁸ RBC Capital Markets, "APA - 1Q19 Earnings In Line with Consensus; Spending Below Expectations," May 1, 2019, 6:38 PM.

Exhibit 12

Impact Date	Event
	<p>asset sales. APA could provide more color on the planned timing for its exploration well in Suriname that could be a significant catalyst.</p> <p>1Q19 recurring EPS/CFPS of \$0.10/\$1.96 compares to our \$0.16/\$1.86 and the Consensus \$0.11/\$1.96 estimates. The outperformance to our model is related to slightly higher commodity price realizations and lower interest expense.</p> <p>1Q19 production adjusted for Egypt tax barrels and non-controlling interest of 437 Mboe/d (212 Mb/d oil) above our 427 Mboe/d (208 Mb/d oil) model. Adjusted production exceeded the company's 425 Mboe/d guidance. US production of 292 Mboe/d (109 Mb/d oil) was above our 286 Mboe/d (108 Mb/d oil) model and the company's 287 Mboe/d guidance.</p> <p>E&P capital spending of \$597 million was below our \$625 million forecast and the \$630 million Consensus expectations.</p> <p>2019 Guidance APA slightly reduced its 2019FY production guidance range to 420-435 Mboe/d from 425-440 Mboe/d. This mostly reflects voluntary curtailments at Alpine High related to low natural gas prices. The company reiterated its YE19 exit growth rate targets.</p> <p>The 2019 capital budget remains unchanged at \$2.4 billion.</p> <p>2Q19 adjusted production guidance of 392 Mboe/d is below our 429 Mboe/d (203 Mb/d oil) forecast due to the aforementioned curtailments that are not yet accounted for in our model.</p> <p>RBC, in a later report, added that Apache “[i]nvestors remain in wait-and-see mode ahead of Suriname exploration results and the completion of the Gulf Coast Express pipeline.” The analyst raised its 2019 and 2020 adjusted EPS and CFPS estimates for the Company “to reflect production curtailments at Alpine High and the impact from the non-core asset sale and associated production”.²⁷⁹</p>

²⁷⁹ RBC Capital Markets, “Apache Corporation, The Waiting Game,” May 2, 2019, 8:42 PM.

Exhibit 12

Impact Date	Event
	<p>Our view: Investors remain in wait-and-see mode ahead of Suriname exploration results and the completion of the Gulf Coast Express pipeline.</p> <p>Key points: Committed to shareholder returns. APA reiterates its commitment to returning 50% of incremental cash generation to investors before increasing its activity set and plans to begin returning cash in the coming months. We estimate capacity to return \$700–800 million to investors this year after when including the \$300 million of non-core asset sale proceeds based on our \$65/bbl (WTI) forecast. There is the \$150 million debt matures (July) that appear to be the first priority. APA has a 40 million share (~11% of shares outstanding) repurchase authorization that is likely to be utilized as well.</p> <p>FCF should accelerate in 2H19. The company benefits from increased NGL recoveries and reduced transportation costs with the completion of its cryo facilities and long-term contracts with Enterprise. The first cryo processing plant at Alpine High is being commissioned and should be filled by the end of May. The second cryo plant should be full by the end of July. We estimate that each 200 MMcf/d facility provides an incremental \$50– 60 million uplift to cash margins and should improve further with the start of the Gulf Coast Express pipeline in 4Q19 allowing transport of gas to the Gulf Coast.</p> <p>Reiterates budget. The budget remains unchanged at \$2.4 billion. Pricing is secured for much of the capital budget including rigs, pressure pumping services, and sand, but the company is seeing costs increases in labor, trucking, fuel, and chemicals as oil prices trend higher.</p> <p>Updating estimates. We update our estimates to reflect production curtailments at Alpine High and the impact from the non-core asset sale and associated production (assumed 2Q19 close). The revised production guide of 420–435 Mboe/d is lowered by 5 Mboe/d to reflect the curtailments but does not reflect the impact of the asset sale.</p>

Exhibit 12

Impact Date	Event
	<p>1Q19 quick recap. The company announced the sale of non-core assets in the Stack/Scoop for \$300 million. Production from the assets is 10 Mboe/d (13% oil) in 1Q19, equating to an implied value of \$30,000/boe/ d. 1Q19 recurring EPS/CFPS of \$0.10/\$1.96 compare to our \$0.16/\$1.86 estimates. The outperformance was related to slightly higher commodity price realizations and lower interest expense. Adjusted production of 437 Mboe/d was above our 427 Mboe/d model. E&P capital spending of \$597 million was below our \$625 million forecast.</p> <p>Scotia wrote that the Company’s “[f]irst quarter results were in line with consensus for cash flow, lower on capex and ahead of guidance for production.” However, the analyst cautioned that “the outlook for 2Q19 is challenging with the recently announced natural gas curtailments in the Alpine High,” “total adjusted production is expected to see a sequential decline of 10%,” and “upstream capex is expected to increase materially and per Boe costs are likely to be higher”:²⁸⁰</p> <p>OUR TAKE: Mixed/Negative. First quarter results were in line with consensus for cash flow, lower on capex and ahead of guidance for production. In aggregate, production was 12 MBoe/d above guidance, comprised of 7 MBoe/d higher volumes internationally and 5 MBoe/d in the U.S. However, while the quarter was fine, the outlook for 2Q19 is challenging with the recently announced natural gas curtailments in the Alpine High. Between Alpine High shut-ins and lower projected international volumes, total adjusted production is expected to see a sequential decline of 10%, or from 437 MBoe/d to 392 MBoe/d. In that same period, upstream capex is expected to increase materially and per Boe costs are likely to be higher.</p> <p>For the year, the capital budget and rig levels remain unchanged, and therefore exit rate guidance has been reaffirmed under the context that regional natural gas pricing is likely to improve in the Alpine High. It is encouraging that the longer-term trajectory is intact, but the near term headwinds in 2Q19 have us avoiding the name for the time being.</p> <p>1Q19 Results: Apache announced 1Q19 adjusted EPS and discretionary CFPS of \$0.10 and \$1.96, versus consensus of \$0.12 and \$1.96 and our estimate of \$0.07 and \$1.87, respectively.</p>

²⁸⁰ Scotia Howard Weil, “Apache Corporation, 1Q19 Results: Quarter Overshadowed by Difficult 2Q19 Outlook,” May 1, 2019, 8:04 PM.

Exhibit 12

Impact Date	Event
	<p>Production for the quarter, excluding Egypt tax barrels and NCI, was 437 MBoe, 12 MBoe/d above the 425 MBoe/d guidance. Costs were primarily in line with our estimates.</p> <p>Seaport wrote that the Company’s first quarter “oil volumes came in +3%, EBITDA +6%, and upstream capex at \$597MM, noticeably below APA’s \$625MM guidance.” The analyst noted that Apache’s “FY19 adj. production guidance was lowered modestly”:²⁸¹</p> <p>Mixed. Strong Q1 as oil volumes came in +3%, EBITDA +6%, and upstream capex at \$597MM, noticeably below APA’s \$625MM guidance. FY19 adj. production guidance was lowered modestly (-1%); however, the downward revision can be accounted for by changes to gassy Alpine High production forecasts due to previously announced/temporary curtailments. Additionally, APA remains on track to exit YE19 on a similar pace as it reiterated prior YE19 exit rate targets. FY19’s spending cadence will likely need further explaining on Thursday’s call – following a disciplined Q1, APA has \$650MM-\$700MM earmarked for Q2 development capex, putting it on an annualized pace to exceed its current \$2.4B budget. Also on the call, we’ll be listening for details on: (1) APA’s upcoming Suriname exploration activity, and (2) potential asset sales – the company recently secured \$300MM in PSAs and is progressing additional sales.</p> <p>Seaport, in a later report, added that the Company’s “mgmt. emphasized its belief that it remains on track with its FY19 budget”:²⁸²</p> <p>Regarding APA’s planned Q2 increase in capex, mgmt. highlighted several factors that contribute to relatively higher spending: (1) a return of a second frac crew in the Midland and Alpine High pad completion timing; (2) timing of exploration spending in Suriname, but also in</p>

²⁸¹ Seaport Global, “Seaport Global Energy Daily (05-02-19) – APA, BTU, CXO, HCC, MRO, MTDR, PDCE, PE, SLCA, SM, SRCI, WLL, WMB, WPX, WTI,” May 2, 2019.

²⁸² Seaport Global, “Seaport Global Energy Daily (05-03-19) – APA, CTRA, GPOR, MRO, MTDR, NBR, PDCE, PE, PES, SM, SRCI, WLL, WPX, WTI, OFS Comps,” May 3, 2019.

Exhibit 12

Impact Date	Event
	<p>the Lower 48; and (3) lease payments at Alpine High due to slowing completion activity. Although APA's Q1 spend and Q2 capex guidance indicate that the company is tracking above expectations, mgmt. emphasized its belief that it remains on track with its FY19 budget. Mgmt also stressed it has no desire to increase D&C activity for now, and that it will first begin returning 50% of FCF to investors before making a move to accelerate, a decision that would likely come sometime in 2H. In Suriname, mgmt. was asked if its location was offsetting a recent updip oil discovery block in neighboring Guyana – mgmt. declined to disclose the location, but restated its belief that its block possesses an active hydrocarbon system with seven plays and >50 very large prospects. Given the current Permian gas macro backdrop, APA has deferred gas production until it receives pipeline relief in 2H, although its 2019 rig schedule and completions activity has not been not impacted by the deferrals. As for Alpine High's production profile, Q2 is pegged at 45-55 Mboepd and is projected to increase to 85-95 Mboepd in Q3, which still includes potential deferred volumes. Q4 and YE19 exit rates are expected to eclipse 100 Mboepd.</p> <p>Stephens wrote that the Company's total production beat its estimates and consensus while EBTIDAX beat both "driven primarily by better-than-anticipated price realizations and lower G,P,&T." The analyst remarked that Apache's "2Q guide is a little noisy as production guidance is below expectations (street had not updated for Alpine volume shut-ins)." As a result, Stephens' preliminary second quarter estimates for adjusted production and EBITDAX were "biased [] lower":²⁸³</p> <p>Apache announced 1Q19 results and provided 2Q guidance. Total production of ~502.9 Mboepd was ~2%/~3% above our/consensus estimates. Notably, Permian and International assets beat our oil production estimates by ~2%. EBITDAX of ~\$1.05 bil. came in ~8%/ ~6% higher than our/consensus estimates, driven primarily by better-than-anticipated price realizations and lower G,P,&T. Capex of \$597 mil. was ~5% below our estimate and company guide. Apache posted solid 1Q19 results (higher volumes on lower capex), though 2Q guide is a little noisy as production guidance is below expectations (street had not updated for Alpine volume shut-ins). While our 2Q19 volume outlook is biased lower, the adjustment is transitory in nature as our</p>

²⁸³ Stephens, "Apache Corporation, First Look: Solid 1Q19 Results; 2Q19 Guide," May 2, 2019.

Exhibit 12

Impact Date	Event
	<p>4Q19 forecasts are largely unchanged (company reiterated its full year capex budget and 4Q19 y/y growth rate). We look for additional information on the call today regarding Suriname and the \$300 mil. in non-core asset sales under signed PSAs.</p> <p>KEY POINTS: Preliminary 2Q19 Outlook. 2Q19 capex guided to \$650 mil. - \$700 mil.; in-line with our estimate.</p> <p>Company guided 2Q19 adj. volumes to 392 Mboepd vs. our ~413 Mboepd outlook. The delta in our estimate vs. guide was lower Alpine (guide of 45-55 Mboepd, ~15% below our expectations) and International volumes (~132 Mboepd guide, ~5% below our forecast). Preliminarily, our 2Q adj production forecast is biased ~4% lower.</p> <p>Preliminarily, our 2Q19 EBITDAX is biased ~2% lower.</p> <p>UBS wrote that “Apache reported solid Q1 results with EBITDAX above expectations tied to int’l production” but “management commentary / outlook in [other] areas will command most of the market’s focus.” The analyst commented that the Company’s second quarter production was expected to decline “at the midpoint from 1Q levels.” UBS noted that the Company’s EPS was short of its estimates and consensus, but production topped both:²⁸⁴</p> <p>What Happened? 1Q Solid, Several Moving Pieces Need Clarity We expect results to receive a neutral reaction. Apache reported solid Q1 results with EBITDAX above expectations tied to int’l production. However, given (1) the production deferrals at Alpine High and current natgas / NGLs pricing, (2) exploration potential in Suriname, and (3) non-core asset divestitures (\$300mm), management commentary / outlook in these areas will command most of the market’s focus. The immediate impact of the deferrals is expected in 2Q with production declining ~20mboepd at the midpoint from 1Q levels. Deferrals are anticipated to last through 3Q. Management did maintain its FY capital budget (despite the</p>

²⁸⁴ UBS, “Apache Corporation, Q1 Beats EBITDAX; Several Other Moving Pieces,” May 2, 2019.

Exhibit 12

Impact Date	Event
	<p>deferrals) and exit volumes, with some rich gas volumes returning in May as Altus Midstream cryogenic streams ahead of schedule. International assets continued to generate FCF.</p> <p>1Q19 Results Solid APA reported 1Q19 results, with EPS / EBITDAX coming in at \$0.10 / \$1,050mn vs. consensus of \$0.12 / \$990mn and UBSe of \$0.15 / \$969mn. Total production for the quarter averaged 503 mboepd vs. consensus / UBSe of 490 / 497 mboepd, with oil production averaging 254 mbopd vs. consensus / UBSe of 250 / 261 mbopd. Upstream capital spend for the quarter was \$597mn vs consensus of \$632mn.</p> <p>Operational Update / Guidance APA reiterated its 2019 capital program of ~\$2.4bn for upstream capex with its exit 4Q18 to exit 4Q19 production guide of 6-10%. FY production guidance has been reduced tied to the US production being down ~5mboepd, partially offset by ~2.5mboepd from Egypt tax barrels and NCI. Upstream costs rose in the qtr to ~\$8/boe tied to deferrals, while North Sea current tax increased due to commodity prices. Cash exploration costs decreased ~\$10mn, partially offsetting the \$40mn increase in North Sea current taxes. Operational highlights included 39 gross completions in the US, 18 of which were in the Midland, and 17 in Alpine High. APA initiated deferral of gas volumes in the Delaware towards the end of the quarter due to weaker Waha spot prices; the impact will be seen in 2Q and 3Q volumes. We suspect some cash flow will be recouped in the market arrangements. The company expects production from Alpine High to be down ~29% in 2Q19 vs. 70mboepd in 1Q19, and sees 3Q volumes up to 90mboepd at the midpoint. Other activity included 23 completed wells in Egypt, representing an 83% success rate and averaged 3 rigs in the North Sea with average quarterly production reaching 2 year high of ~66mboepd.</p> <p>Conference Call at 11am ET – Available via Webcast Call focus: (1) Divestitures, (2) Alpine High Deferrals, (3) Cryogenic buildout timeline, and (4) Suriname update.</p>

Exhibit 12

Impact Date	Event
	<p>Wolfe wrote that the Company’s CFPS “was inline with the Street but missed our forecast ... due to higher-than-expected LOE and cash taxes,” and production topped guidance “due to better-than-expected U.S. and Int’l volumes.” The analyst commented that investor “concern continu[ed] to linger over the impact of low Permian gas prices”:²⁸⁵</p> <p>Suri-mania In Focus. The two biggest pieces to the APA story exist outside the quarterly print, with expectations building towards the mid-2019 Suriname well, and concern continuing to linger over the impact of low Permian gas prices. On the former, we’ll look for color tomorrow on a potential farm out (unlikely until after the first well is drilled) and any update on the well location and potential target size. Success could shift the risk/reward to the upside, but we remain Underperform based on the Alpine High centric profile, with Waha still near \$0/mmbtu and ethane/propane prices still weak.</p> <p>Results. APA reported CFPS of \$1.96 that was inline with the Street but missed our forecast of \$2.10 primarily due to higher-than-expected LOE and cash taxes. 1Q19 adjusted production of 437mboepd exceeded the guidance of 425mboepd due to better-than-expected U.S. and Int’l volumes and was up 4% Q/Q. The beat in the U.S. was nearly all driven by Permian gas volume growth, highlighting the gassy nature of APA’s acreage in the play as oil volumes in the play were below our expectations. 1Q19 upstream capex came in at \$597mm, beating the \$625mm guidance. Share repurchases should start soon along with \$300MM of asset divestiture proceeds announced as well.</p> <p>Alpine High Deferrals Quantified. After announcing last week that it would begin deferring near-term completions at Alpine High due to low Waha gas pricing, APA forecast that 2Q19 volumes in the play will average 45-55 MBOE/d, down <30% vs. 1Q19 Alpine High production of 70 MBOE/d. The >100MBOE/d has remained intact though. During the quarter APA dropped from 7 rigs/2 frac crews in the play to 5 rigs/1 crew with completions falling by 35% Q/Q, so activity here is clearly dropping.</p>

²⁸⁵ Wolfe Research, “Apache Corp., Paramaribo Dreamin’,” May 1, 2019.

Exhibit 12

Impact Date	Event
	<p>4Q19 Guidance Reiterated. Despite the Alpine High deferrals, APA left 4Q19 vs. 4Q18 production growth guidance unchanged, including its Permian oil exit-to-exit target of 5% growth. With Permian oil volumes falling Q/Q in 1Q (and 2% below our ests.), look for any color on non-Alpine High cadence during the upcoming quarters in order to hit this target.</p> <p>Following the Company's disclosures on May 1 and 2, 2019, according to Bloomberg, the average of analysts' price targets for Apache stock decreased to \$36.43 from \$36.83, or -1.11%. All 31 analysts who published investment ratings for the Company both before and after the earnings announcement maintained their ratings. (<i>See</i> Exhibit 5C.)</p> <p>Remark: Given that: (i) the Company's adjusted EPS was short of consensus "with production ahead of guidance offset by weak realizations;"²⁸⁶ and (ii) the Company's "outlook for 2Q19 [wa]s challenging,"²⁸⁷ the statistically significant Company-specific stock price decline on May 2, 2019 is consistent with that expected in an efficient market.</p>
8/1/2019	After market close on Wednesday, July 31, 2019, the Company announced its second-quarter 2019 financial results. For the quarter, Apache reported production of 455 mboe/d, revenue of \$1.60 billion, EPS loss of -\$0.96, and

²⁸⁶ Bank of America Merrill Lynch, "Apache Corp, 1Q19 earnings recap: in line, curtailments underline the difficulty of growing gas," May 1, 2019, 10:51 PM. *See also, e.g.*, Credit Suisse, "Apache Corporation, Still Waiting for FCF Inflection; Trimming Ests," May 2, 2019; Jefferies, "Apache, 1Q19 Miss, 2019 Capex and Exit Rate Growth Reaffirmed," May 1, 2019, 9:08 PM; MUFG, "Apache Corp., Turning A Corner Cryogenically in the Second Half?" May 2, 2019.

²⁸⁷ Scotia Howard Weil, "Apache Corporation, 1Q19 Results: Quarter Overshadowed by Difficult 2Q19 Outlook," May 1, 2019, 8:04 PM. *See also, e.g.*, BMO Capital Markets, "Apache, 1Q19 Vols Better With Capex in Line; 2019 Trimmed on Alpine Curtailments," May 1, 2019, 8:39 PM; Simmons Energy, A Division of Piper Jaffray, "Apache Corporation, Q1'19 Quick Look: Solid Result, While Market Waits on Suriname," May 1, 2019, 8:37 PM; Stephens, "Apache Corporation, First Look: Solid 1Q19 Results; 2Q19 Guide," May 2, 2019.

Exhibit 12

Impact Date	Event
	<p>adjusted EPS of \$0.11.²⁸⁸ Apache had released preliminary second-quarter estimated average realized prices after the close of trading on July 18, 2019.^{289, 290}</p> <p>The consensus estimates of the Company's revenue and adjusted EPS were \$1.58 billion and \$0.06, respectively.²⁹¹</p> <p>John J. Christmann IV, Apache's chief executive officer and president, commented on the Company's results, stating that despite second-quarter delays in bringing wells online, Apache would "exit the year with oil production on plan".²⁹²</p> <p>Apache has demonstrated capital discipline, refined our portfolio with the sale of the midcontinent assets, utilized asset sale proceeds to reduce debt, and successfully commissioned our first cryogenic processing facilities at Alpine High. We also delivered strong cash flow as our leverage to WTI and Brent oil prices offset the impact of very weak natural gas and natural gas liquids prices</p> <p>We responded quickly to weak Waha and El Paso Permian gas prices and deferred production at Alpine High. While total Permian production volumes were strong, oil volumes trailed guidance due to timing delays bringing wells online during the quarter. We will catch up in the second half of 2019 and exit the year with oil production on plan and with strong momentum heading into 2020.</p>

²⁸⁸ Apache News Release, "Apache Corporation Announces Second-Quarter 2019 Financial and Operational Results," July 31, 2019. *See also GlobeNewswire*, "Apache Corporation Announces Second-Quarter 2019 Financial and Operational Results," July 31, 2019, 9:46 PM.

²⁸⁹ *Globe Newswire*, "Apache Completes Midcon Asset Sales; Provides Second-Quarter Supplemental Information and Schedules Results Conference Call for August 1, 2019, at 10 a.m. Central Time," July 18, 2019, 6:33 PM.

²⁹⁰ On July 19, 2019, there was a statistically insignificant Company-specific stock price change.

²⁹¹ *Reuters*, "Apache Corp reports results for the quarter ended in June - Earnings Summary," August 1, 2019, 8:21 AM.

²⁹² Apache News Release, "Apache Corporation Announces Second-Quarter 2019 Financial and Operational Results," July 31, 2019.

Exhibit 12

Impact Date	Event																																																									
	<p>We have balanced our quarterly investment pace, and through June 30, have invested slightly less than half of our 2019 upstream capital budget. For the full year, we anticipate spending at or below our \$2.4 billion budget</p> <p>The Company also provided updated 2019 guidance and provided third quarter 2019 guidance, as follows:²⁹³</p> <table><tr><th><u>Daily Production (mboe/d)</u></th><th><u>May '19 Guidance</u></th><th><u>Updated</u></th></tr><tr><td>United States</td><td>290 - 300</td><td>270 - 280</td></tr><tr><td>International</td><td>195 - 200</td><td>195 - 196</td></tr><tr><td> Reported Production</td><td>485 - 500</td><td>465 - 476</td></tr><tr><td> Less: Egypt Tax Barrels</td><td>29</td><td>26</td></tr><tr><td> Less: Egypt Noncontrolling Interest</td><td>36</td><td>36</td></tr><tr><td> Total Adjusted Production</td><td>420 - 435</td><td>403 - 414</td></tr><tr><td>Alpine High</td><td>75 - 80</td><td>72 - 75</td></tr><tr><td colspan="3"><u>Estimated Product Mix: Oil/NGLs/Natural Gas</u></td></tr><tr><td>United States</td><td>37% / 26% / 37%</td><td>37% / 26% / 37%</td></tr><tr><td>International (adjusted)</td><td>70% / 2% / 28%</td><td>70% / 2% / 28%</td></tr><tr><td colspan="3"><u>Upstream Capital Investment Guidance (billions)</u></td></tr><tr><td>United States</td><td>75%</td><td>75%</td></tr><tr><td>International</td><td>25%</td><td>25%</td></tr><tr><td> Upstream Total</td><td>\$2.4</td><td>\$2.4</td></tr><tr><td colspan="3"><u>Income Statement Items</u></td></tr><tr><td>Upstream Lease Operating Expenses (per boe)</td><td>\$8.00</td><td>\$8.55</td></tr><tr><td>Gathering, Transmission, Processing (millions)</td><td>\$400</td><td>\$350</td></tr><tr><td>DD&A (per boe)</td><td>\$14.25</td><td>\$14.75</td></tr></table>	<u>Daily Production (mboe/d)</u>	<u>May '19 Guidance</u>	<u>Updated</u>	United States	290 - 300	270 - 280	International	195 - 200	195 - 196	Reported Production	485 - 500	465 - 476	Less: Egypt Tax Barrels	29	26	Less: Egypt Noncontrolling Interest	36	36	Total Adjusted Production	420 - 435	403 - 414	Alpine High	75 - 80	72 - 75	<u>Estimated Product Mix: Oil/NGLs/Natural Gas</u>			United States	37% / 26% / 37%	37% / 26% / 37%	International (adjusted)	70% / 2% / 28%	70% / 2% / 28%	<u>Upstream Capital Investment Guidance (billions)</u>			United States	75%	75%	International	25%	25%	Upstream Total	\$2.4	\$2.4	<u>Income Statement Items</u>			Upstream Lease Operating Expenses (per boe)	\$8.00	\$8.55	Gathering, Transmission, Processing (millions)	\$400	\$350	DD&A (per boe)	\$14.25	\$14.75
<u>Daily Production (mboe/d)</u>	<u>May '19 Guidance</u>	<u>Updated</u>																																																								
United States	290 - 300	270 - 280																																																								
International	195 - 200	195 - 196																																																								
Reported Production	485 - 500	465 - 476																																																								
Less: Egypt Tax Barrels	29	26																																																								
Less: Egypt Noncontrolling Interest	36	36																																																								
Total Adjusted Production	420 - 435	403 - 414																																																								
Alpine High	75 - 80	72 - 75																																																								
<u>Estimated Product Mix: Oil/NGLs/Natural Gas</u>																																																										
United States	37% / 26% / 37%	37% / 26% / 37%																																																								
International (adjusted)	70% / 2% / 28%	70% / 2% / 28%																																																								
<u>Upstream Capital Investment Guidance (billions)</u>																																																										
United States	75%	75%																																																								
International	25%	25%																																																								
Upstream Total	\$2.4	\$2.4																																																								
<u>Income Statement Items</u>																																																										
Upstream Lease Operating Expenses (per boe)	\$8.00	\$8.55																																																								
Gathering, Transmission, Processing (millions)	\$400	\$350																																																								
DD&A (per boe)	\$14.25	\$14.75																																																								

²⁹³ Apache News Release, "Apache, Second-Quarter 2019, Financial and Operational Supplement," July 31, 2019.

Exhibit 12

Impact Date	Event		
	Cash Exploration Costs (millions)	\$100	\$120
	General and Administrative Expenses (millions)	\$450	\$450
	Financing Costs (millions)	\$400	\$400
	North Sea Current Tax Expense (millions)	\$240	\$240
	<u>Quarterly Guidance</u>	<u>3Q 2019 Guidance</u>	
	Production (mboe/d)		
	United States	250 - 260	
	International (Adjusted)	<u>123</u>	
	Total Adjusted Production	373 - 383	
	Upstream Lease Operating Expenses (per boe)	\$9.00	
	Gathering, Transmission, Processing (millions)	\$80	
	Cash Exploration Costs (millions)	\$40	
	General and Administrative Expenses (millions)	\$110	
	North Sea Current Tax Expense (millions)	\$45	
	North Sea Cash Taxes Paid (millions)	\$82	
	Christmann commented on the Company’s guidance: ²⁹⁴		
	Our objectives for the second half of 2019 include managing capital investment to a level at or below our full-year budget of \$2.4 billion, increasing Permian Basin oil well completions and oil production, continuing to drive capital and operating efficiencies into our business, and enhancing our opportunity set through high-impact exploration initiatives in Suriname and the Lower 48		

²⁹⁴ Apache News Release, "Apache Corporation Announces Second-Quarter 2019 Financial and Operational Results," July 31, 2019.

Exhibit 12

Impact Date	Event
	<p>The Company held a conference call with investment analysts the following morning.²⁹⁵</p> <p>Bank of America Merrill Lynch wrote that the Company “had another solid quarter of execution during a challenging environment for gas in the Permian.” The analyst opined that Apache’s “lower [production] guide [was] likely anticipated” by the market. BofAML lowered its price target for the Company to \$29 from \$30 after “update[ing] our projections to reflect our Global Commodity team’s \$2.40 HH forecast in 2021 vs. our \$2.60 assumption prior”.²⁹⁶</p> <p>Earnings & cashflow in-line; lower guide likely anticipated APA reported CFPS of \$1.78 which we see in-line with consensus and BofA (\$1.81 and \$1.77 respectively). Note price realizations were preannounced on July 18th. Production of 396 Mboe/d topped guidance (392 Mboe/d); but Permian oil volumes of ~92 Mbbl/d fell slightly below a 96 Mbbl/d guide due to delays on turning wells to sales, in part due to weak natural gas prices. Given this, APA has revised its 2019 Permian oil and Alpine High guidance: Permian oil volumes are now expected to grow by ~4% from 4Q18 to 4Q19 based on mid-guidance vs 6% prior; Alpine High is still expected to exit the year at over 100 Mboe/d but APA has reduced its 3Q19 guide to 70-75 from 85-95 Mboe/d as it continues to defer volumes until Gulf Coast Express comes on-line in Oct. EPS of \$0.11 was essentially in line with consensus (\$0.07).</p> <p>FY spending unchanged, but 2Q below guide came in light Capex at \$589mm was ~13% below the mid-point of guidance. We believe this may, in part, be due to the delays in turning wells to sales in the Permian as FY 2019 spending of \$2.4bn is so far unchanged. APA brought on its 2nd cryogenic plant at the end of July at Alpine High setting up a moderately better 2h as liquids cuts improve. Ex US 3Q19 is still expected to be the low point for international volumes for the year due to turn around maintenance in the North Sea. APA is</p>

²⁹⁵ Thomson Reuters, StreetEvents, “APA – Q2 2019 Apache Corp Earnings Call, EVENT DATE/TIME: AUGUST 1, 2019 / 3:00PM GMT,” August 1, 2019, 11:00 AM.

²⁹⁶ Bank of America Merrill Lynch, “Apache Corp, 2Q19 Earnings recap: solid quarter in a bad (gas weighted) tape,” August 1, 2019, 4:18 AM.

Exhibit 12

Impact Date	Event
	<p>expecting international production to decline by ~10 Mboe /d qoq to 123 Mboe/d. Missing for the release is an update on the timing of its exploration well off the coast of Suriname on Block 58 noting delays to rig availability following successful exploration by the prior operator in the US GoM. Still this remains one area that in a success case could change the trajectory of APA from an investment case dominated by a deteriorating US gas price outlook.</p> <p>Maintain Underperform on gas weight</p> <p>All-in-all, APA had another solid quarter of execution during a challenging environment for gas in the Permian. Our Underperform rating continues to reflect Apache's growth outlook tied to gas in the Alpine High. We have updated our projections to reflect our Global Commodity team's \$2.40 HH forecast in 2021 vs. our \$2.60 assumption prior. The impact lowers our PO to \$29 from \$30. See table 2 for EPS estimate changes.</p> <p>BMO wrote that the Company's adjusted EPS and EBITDAX were above its estimates and consensus, "but oil was below expectations on Permian delays, while International was in line, with capital spending below guidance." The analyst noted that guidance for "2H19 Permian [oil] and Alpine High [were] [trimmed]":²⁹⁷</p> <p>Bottom Line: Apache reported better 2Q19 EPS/EBITDAX, but oil was below expectations on Permian delays, while International was in line, with capital spending below guidance. As a result of completion delays, 2H19 Permian oil guidance was cut, while Alpine High 3Q19 curtailments resulted in total production guidance below our model, while 2019 capital is being targeted at or below budget.</p> <p>Key Points</p> <p>2Q19 Headline Beat, but Oil Below on Lower Capex. Apache reported 2Q19 EPS of \$0.11, above our/consensus -\$0.06/0.06 estimates. Consolidated EBITDAX of \$994mm was above our/consensus \$981/968mm. Partial realizations were pre-announced, while production of 455MBoe/d was near our/consensus 459/458MBoe/d estimates. Both U.S. (264MBoe/d vs.</p>

²⁹⁷ BMO Capital Markets, "Apache, Permian Oil Weaker in 2Q19; 2H19 Lower on Delays/3Q Alpine Curtailments," July 31, 2019, 10:51 PM.

Exhibit 12

Impact Date	Event
	<p>263MBoe/d BMOe) and International (132MBoe/d pro forma) production was in line with expectations. That said, oil of 237MBbl/d was below our/ consensus 240/241MBbl/d with Permian the difference (Permian BOEs in line), as Egypt/North Sea were within 1MBbl/d of our model. Apache noted delays in POPs during 2Q19 as the reason for the oil miss. Alpine High production of 49MBoe/d was in line with guidance (45-55MBoe/d). Upstream capex of \$589mm was below guidance (\$650-700mm), with slightly less than half of Apache's \$2.4Bn budget spent in 1H19.</p> <p>2H19 Permian Oil and Alpine High Trimmed. Apache lowered its 2H19 Permian oil guidance on completion delays by reducing 3Q19 to 94-98MBbl/d (vs. 100MBbl/d) and 4Q19 to 100-105MBbl/d (vs. 105MBbl/d). Alpine High was also cut to 70-75MBoe/d from 85-95MBoe/d, while >100MBoe/d in 4Q19 was maintained with the in-service of GSX. International production in 2H19 was unchanged, while the Mid-Continent was adjusted for the previously announced asset sale (\$560mm net proceeds). As such, 3Q19 adjusted production guidance of 373-383MBoe/d is below our 395MBoe/d, which already excluded Mid-Con, with U.S. driving most of the miss vs. our model (Intl 5MBoe/d light). Apache noted its objective is to be at or below \$2.4bn capex for the full year despite more completion weighted spend in 2H19, Storr development in North Sea, P&A GOM timing, and Suriname exploration.</p> <p>Cowen wrote that the Company's "2Q production was effectively inline, though oil missed by -2%[,] [c]apex was 1% better vs. our model and FY19 year spend is trending at/below guidance." The analyst also observed that "EBITDAX beat by 3%," and that "[t]iming delays in the Midland and Alpine High deferrals [led to] lower 2H19 guidance".²⁹⁸</p> <p>2Q production was effectively inline, though oil missed by -2%. Capex was 1% better vs. our model and FY19 year spend is trending at/below guidance. Timing delays in the Midland and Alpine High deferrals lower 2H19 guidance, particularly 4% lower Permian oil in 2H19. 2Q was helped by better than expected pricing as EBITDAX beat by 3% though a lower oil outlook may cause slight under-performance.</p>

²⁹⁸ Cowen, "Apache Corporation, 2Q19 Quick Take: APA: Solid Though Timing Delays Slow Permian," August 1, 2019.

Exhibit 12

Impact Date	Event
	<p>Permian Oil Miss as a Result of Timing: 2Q19 Permian oil production of 92 mboe/d missed our estimate of 94 mboe/d by -2% and guidance of 96 mboe/d by -4%. Management mentioned that despite strong performance, the miss was a result of timing delays; the commissioning of a new electric-powered frac fleet in the Midland delayed nine wells during 2Q. 3Q19 and 4Q19 Permian oil production guidance was lowered from 100 Mboe/d and 105 Mboe/d to 94-98 Mboe/d and 100-105 Mboe/d, respectively. At the midpoint, updated 3Q and 4Q guidance is -3% and -1% below what we had forecasted, respectively.</p> <p>Alpine High 2H19 Assumptions Lowered: 3Q19 Alpine high guidance was also lowered to 70-75 Mboe/d (-12% lower vs. prior guidance of 85-95 Mboe/d and we were at 87 Mboe/d). ~22 Mboe/d of production was deferred in 2Q19. 3Q19 guidance was reduced to reflect continued deferrals until the GCX pipeline goes online. 4Q19 guidance was unchanged at 100+ mboe/d, which assumes no further deferrals and 100% ethane recovery.</p> <p>Continued Alpine High Well Cost Declines: APA noted that from 2017 through 2Q19, average drilling and completion costs have declined by 26% and 41%, respectively. The company cites, drilling design optimization (pad and batch drilling, reduced hole size, and eliminating a casing string), larger pads, slightly longer laterals, improved pricing and supply chain management as important drivers. Expect questions on the call regarding labor and service cost and if the company anticipates any changes given an expectation of a slow-down in activity.</p> <p>Egypt Update: During 2Q, APA made a discovery in Egypt, in the Lower Bahariya, which the company expects to provide “several low-cost, short cycle drilling locations. The company’s program success rate fell q/q, from 83% (19 out of 23) to 55% (6 out of 11) in 2Q19. Expect discussions regarding additional exploration opportunities in Egypt and color around what could influence the success rate.</p>

Exhibit 12

Impact Date	Event
	<p>Credit Suisse wrote that Apache's "2Q CFPS and oil [volumes were] light," but EPS and EBITDX beat consensus. The analyst further noted that the Company "[l]ower[ed] 2019 volume guidance but maintain[ed] [its] budget".²⁹⁹</p> <p>2Q CFPS and oil light but EBITDX beats. While 2Q clean EPS of \$0.11 beat consensus' \$0.07, CFPS of \$1.61 was well below Street expectations of \$1.81 and CSe \$1.90 with the miss vs. CSe driven by higher current taxes; however, EBITDX was in line with CSe and exceeded consensus by 3%. Production of ~455 MBoed (-2% YoY) was just shy of consensus of ~458 MBoed (2% above CSe), with oil volumes of 237 MBbld were ~1-2% below expectations. APA generated a ~\$160MM organic E&P FCF deficit in 2Q.</p> <p>Lowers 2019 volume guidance but maintains budget. APA reduced its 2019 "reported" volume guidance by ~5% to 465-476 MBoed (flat to +2% YoY) mostly on recent Mid-Con asset sales (~68% of the reduction) but also due to timing delays bringing wells online in the Midland Basin and higher than expected gas production deferrals in Alpine High. Overall, APA cut its US volume guidance from 290-300 MBoed to 270-280 MBoed. Meanwhile, APA also trimmed the upper end of its international production guidance by ~4 MBoed to 195-196 MBoed. APA expects upstream spending to be "at or below" its 2019 budget of ~\$2.4bn, which we estimate should enable an organic E&P FCF deficit (after dividend) of ~\$300MM at current strip prices.</p> <p>Other key takeaways: 1) 3Q implied production guidance is ~439 MBoed, well below consensus of ~476 MBoed (although some estimates may not be adjusted for Mid-Con sale) and prior CSe of ~463 MBoed due to further production deferrals in Alpine High where it now expects 3Q volumes of 70- 75 MBoed (vs. 85-95 MBoed prior); however, its 4Q Alpine High guidance of >100 MBoed is unchanged; 2) 4Q volume guidance of 481-496 MBoed (up ~11% QoQ) also came in below consensus and prior CSe of ~503 Mboed and 496 MBoed; and 3) we lowered 2019-21 CFPS estimates by ~2% on average on the 2Q miss and reduced production growth.</p> <p>Fully valued vs. peers. Our \$25 TP is based on ~5.0x normalized 2020E DACF. Risks: Permian gas diffs, Alpine High execution.</p>

²⁹⁹ Credit Suisse, "Apache Corporation, 2Q CFPS Light; Trimming Estimates, Rich Valuation," August 1, 2019.

Exhibit 12

Impact Date	Event
	<p>Evercore wrote that the Company’s second quarter was “[i]n line” and production was above its estimate and consensus. However, the analyst commented that “[t]he highlight from 2Q was a modest operational miss in the Permian ... and continued shut-ins at Alpine due to low in basin commodity price.” The analyst observed that “APA maintained previously issued 2019 Upstream Capital guidance,” but “decreased total adj production guidance”.³⁰⁰</p> <p>2Q In line, Permian timing disappointing, Alpine still a question mark. The focus during 1H19 at APA was delivering to guided capex & leverage to Brent, and providing a framework for shareholders to understand the go forward (Alpine moving to steady state with infrastructure build-out, 50% of FCF coming back to shareholders). The highlight from 2Q was a modest operational miss in the Permian (delayed frac crew and some mechanical well issues in the Delaware) and continued shut-ins at Alpine due to low in basin commodity price. Management has shown a resolve to manage the program with flexibility and dispelled fears that capital obligations (both upstream & midstream) would prove an overhang at Alpine High. That said, Permian oil directed drilling is one of the only shorter cycle levers available to address weakness in other commodity markets and the (albeit transitory) operational challenges APA experienced in the basin should give the market some pause, in our view. With 2 Cryo trains online at Alpine (and train 3 expected in 4Q) nearer-term focus likely shifts to the debottleneck of Permian NG and NGL markets (APA holds 0.55 Bcf/d of capacity on the 2 Bcf/d GCX pipeline) and what volume (and margin) growth opportunity this affords. APA made it clear that economics (and the 79% ownership of ALTM) would play a primary role in the capital allocation process and volume guidance is a function of the expected environment (not today’s pricing environment). Expect some hype surrounding Suriname (first well spud likely Sept) exploration, which we respect for the potential to materially shift the forward re-investment opportunity for the company. The opportunity set closer to home looks dependent on a few externalities which may not materialize. Maintain In-Line.</p>

³⁰⁰ Evercore ISI, “Apache, Bump & Run in West Texas,” August 1, 2019, 2:03 AM.

Exhibit 12

Impact Date	Event
	<p>2Q Results: APA reported total 2Q19 production of 455 mboe/d (incl. NCI), above our/street estimates of 453/454 mboe/d, mostly driven by higher NGL production. Total US production of 264 mboe/d was above our 256 mboe/d estimate (US oil at 103 mbpd vs our 103 mbpd despite a 4 mbo/d miss on Permian oil volumes). International volumes were at 147.3 mboe/d, 3.6 mboe/d below our estimates.. Costs were generally in line with higher LOE costs (APA mentioned Egypt salaries + diesel usage internationally) offset by unit SG&A, Transportation and Production taxes all lower. 2Q upstream of \$661 mm (cost incurred O&G) vs our \$667. CFPS of \$2.26 was ~3% above our \$2.20 estimate, driven by better volumes and slightly better cash costs. APA maintained previously issued 2019 Upstream Capital guidance of \$2.4 Bn however, the company decreased total adj production guidance to 408.5 mboe/d (at midpoint and implying a ~4% decrease). The reduction in production guidance was driven by an additional Alpine High NG deferrals (~4.6 mbo/d FY19 production impact), delays in the Permian operations (FY19 oil production guidance decreased by 3% to 97.3 mbo/d from 99.8 mbo/d, at midpoint) and Anadarko basin exit (~18 mboe/d FY19 production impact). Additionally, APA narrowed international guidance from 197.5 mboe/d to 195.5 mboe/d (at midpoint).</p> <p>Alpine High: ALTM successfully commissioned CRYO1/2 plants on schedule. In 2Q, The Company operated 5 rigs on the asset and TILed 26 wells with half of them coming online late. APA re-iterated 4Q volume guidance of 0.6 Bcfe/d while noting on the conference call that this assumes cryo's operating in full ethane recovery mode and if commodity markets are not supportive then curtailments will be continued.</p> <p>Permian: With 7 rigs operating across Midland and Delaware, APA TILed 29 wells with 9 wells commissioned late due to operational issues. APA experienced a delay on the arrival of a new electric frac spread and reported mechanical downhole challenges at Dixieland (Delaware), which delayed some completions.</p> <p>North Sea: Production off the highs witnessed in 1Q, completed a farm-out agreement of the Beryl area for future tertiary exploration operations. The company expects 3Q production to be impacted by seasonal TAR ops.</p>

Exhibit 12

Impact Date	Event
	<p>Highlights from the call. 60% of Permian wells will now be TIL'd in 2H. While 4Q oil guide range was widened to 100-105 mbpd (vs. 105 previously) the expectation is for the US onshore to have a healthy trajectory of oil growth into 2020.</p> <p>Sticking with \$2.4 Bn upstream capex, 2020 trending “at or below” – some moving parts of the capital budget (P&A and Storr dev.) while APA is staying with the plan. Management highlighted that longer term price signals would continue to drive capital allocation.</p> <p>Suriname on tap. 2 well slot with first spud expected in Sept. Our base expectation remains that APA drills the first wells on an 8/8th basis (multiple targets mentioned suggestion the exploration budget could be boosted in 2020 here). Based on success in Guyana (Haimara-1 discovery close to the international boundary with Suriname), expectations are clearly rising. That said, this is still frontier exploration.</p> <p>Jefferies wrote that the Company’s adjusted EPS and EBITDA were above its estimates and consensus. However, the analyst viewed the Company’s report as a “Slight Negative” given “a 2Q volume miss and lowered adj prod guidance for '19 by 1% (adj for asset sales) on an unch capital plan”:³⁰¹</p> <p>Slight Negative. APA reported a 2Q volume miss and lowered adj prod guidance for '19 by 1% (adj for asset sales) on an unch capital plan. The US portfolio drove the entirety of the miss, raising questions about LT capital efficiency. Arguably the most puzzling item was the unchanged mix guidance given the removal of gassier Mid-Con prod (asset sale) and Alpine High gas deferrals drove the majority of guidance reduction.</p> <p>APA Reports EPS Beat. APA reported 2Q19 adj EPS of \$0.11, ahead of JEF and cns at \$0.01 and \$0.09, respectively. EBITDA of \$994mm was ahead of JEF and cns estimates of \$942mm and \$968mm. Oil prod totaled 236.8 mb/d, well below our 242.7 mb/d and cns at 241.2 mb/d, while total prod of 455 mboe/d was closer to our 461 mboe/d and cns at 458 mboe/d. Upstream</p>

³⁰¹ Jefferies, “Apache, 2Q19 Beat; Lowering US Expectations,” August 1, 2019, 9:06 AM.

Exhibit 12

Impact Date	Event
	<p>capex of \$589mm for 2Q19 was below JEF at \$676mm and well below APA's guidance range of \$650-700mm. Variance to our EPS estimate resulted from stronger oil realizations, higher gas prod, lower prod taxes, and lower G&A, partially offset by lower oil/NGL prod, and higher LOE, DD&A, and interest (due to early debt retirement).</p> <p>2019 Guide Updated. APA left 2019 capex unchanged at \$2.4bn (upstream), but lowered prod guidance for both US (-1.7% adj for Mid-Con sale) and international (-2.0%) segments, driving new adj prod guidance of 403-414 mboe/d (-4.4% assuming respective mdpts). APA also increased LOE (\$8.55/boe from \$8 prior) and cash expl guidance (\$120mm from \$100mm) and lowered GP&T (\$350mm from \$400mm).</p> <p>US Prod Guide Lowered Across the Board. In the Permian, APA now expects 3Q oil prod of 94-98 mb/d (vs. 100 mb/d prior) and 4Q to avg 100-105 mb/d (vs. 105 mb/d prior). 2Q Permian oil came in 4% below guidance. For the Alpine High, APA tweaked 3Q lower to 70-75 mboe/d (from 85-95 mboe/d) due to GCX timing, while 4Q19 is unch (2Q prod came in the middle of the guided range). Int'l guidance was unch.</p> <p>3Q19 Guide. For 3Q19, APA guided adj prod of 373-383 mboe/d, which came in below JEF at 406 mboe/d (-6.9%). APA did not guide a 3Q upstream capex range this qtr, but expects 2H19 spend similar to 1H19 at ~\$1.2bn.</p> <p>Midland Ops. APA ran four rigs in the Midland in 2Q19 and brought 20 wells online. APA experienced a delay in commissioning an electric frac fleet, delaying prod from nine wells but did not quantify the impact.</p> <p>Delaware Ops. APA ran three rigs in the Delaware outside the Alpine High (AH) in 2Q19 and placed nine wells online. In AH, APA ran five rigs and two completion crews and placed 26 wells online, with half of the wells TIL'd in late 2Q19 and still cleaning up at qtr end. 2Q19 AH prod of 49 mboe/d was impacted by 22 mboe/d of deferrals due to low gas/NGL pricing.</p>

Exhibit 12

Impact Date	Event
	<p>JP Morgan wrote that “[d]espite [Apache’s] solid 2Q19 financials and lower capex, we see a negative reaction to the print as 2Q19 oil volumes were 2% below consensus expectations and the 2H19 Permian oil guide in 3Q and 4Q are 4.0% and 2.4% below management’s prior guide”.³⁰²</p> <p>JPM View: Despite solid 2Q19 financials and lower capex, we see a negative reaction to the print as 2Q19 oil volumes were 2% below consensus expectations and the 2H19 Permian oil guide in 3Q and 4Q are 4.0% and 2.4% below management’s prior guide owing to completions delays in the Midland Basin. Meanwhile, APA reduced its 3Q19 Alpine High guide, citing natural gas production deferrals until the start-up of the GCX pipeline.</p> <p>APA lowers 2019 production guide, capex reiterated: APA lowered its 2019 production guidance by 4.5% to 471 MBoe/d, which was 3.3% below consensus at 486 MBoe/d, and 2.0% below JPMc at 480 MBoe/d. Our forecast had been adjusted for the 32 MBoe/d of Mid-Continent asset sales that closed in 2Q and 3Q, respectively. However, the company noted that its full year capex was trending at or below the \$2.4 billion guide. APA cited lower 2H19 volumes in the Permian Basin as a result of completion delays in the Midland Basin and continuing gas production deferrals at Alpine High in response to weak Waha gas prices for the lowered production.</p> <p>JP Morgan, in a later report, added that “Apache reported positive results as production exceeded guidance on the back of growth in the US but declines internationally.” The analyst remarked that the Company’s “positives were partially offset by a continued increase in lease operating expense and weaker results in Alpine High on the back of the decision to defer gas volumes”.³⁰³</p> <p>Positives</p>

³⁰² JP Morgan, “Apache Corp, 2Q19 Flash: Despite In-Line Financials and Lower Capex, Lower Permian Guide Will Be the Focus,” July 31, 2019, 11:25 PM.

³⁰³ JP Morgan, “Apache Corp, 2Q19: Solid Results in the Quarter, Asset Sales Proceeds Used For Debt Reduction, Production Guidance Lowered,” August 1, 2019, 11:52 PM.

Exhibit 12

Impact Date	Event
	<p>Production increased by 2% YoY to 396mboe/d, which exceeded guidance of 392mboe/d. US production increased by 3% YoY to 264mboe/d led by a 12% YoY increase in Permian production to 226mboe/d. Results were partially offset by a 33% YoY decrease in Midcontinent/Gulf Coast production to 32mboe/d.</p> <p>NGL production increased by 5% YoY to 64.5mboe/d on the back of a 15% YoY increase in international production and a 5% increase in US production.</p> <p>Altus Midstream's first two cryogenic plants have been commissioned, the first during the 2Q and the second in July; both were on budget and ahead of schedule.</p> <p>The company spent \$589mm in upstream capex during the quarter, which is 13% below the midpoint of guidance. Management elected to maintain its guidance of \$2.4bn during the year despite this update.</p> <p>Liquidity remains ample in our view, with \$549mm of cash on hand, ~\$4.0bn of total revolver capacity, and \$293mm of debt maturing in the next 18 months. The company closed on its Midcontinent asset sales in May and July for \$560mm, \$150 of which was used to retire debt in July.</p> <p>Negatives</p> <p>Management revised their Permian oil production guidance in 3Q to 94- 98mboe/d and their 4Q guidance to 100-105mboe/d on the back of delays and gas production deferrals. While capex guidance of \$2.4bn was maintained but trending to at or that level.</p> <p>Oil production declined by 4% YoY to 237mbbls/d due to a 2% decline in US production and a 6% decline in international production. Natural gas production declined by 1% YoY to 922mmcf/d as an 8% growth in US production was offset by a 15% decline in international production.</p> <p>***</p>

Exhibit 12

Impact Date	Event
	<p>Bottom Line</p> <p>In our view, Apache reported positive results as production exceeded guidance on the back of growth in the US but declines internationally. Production growth was despite capex that tracked below the midpoint of guidance. Those positives were partially offset by a continued increase in lease operating expense and weaker results in Alpine High on the back of the decision to defer gas volumes. We remain cautious of the decision to defer volumes in the second half of the year while natural gas prices may remain weak as the deferral has already led to the company reducing its production guidance. We like that the company elected to utilize a portion of its asset sales proceeds to pay down debt. We would like to see further progress on production growth in the U.S while maintaining capital discipline. We like management's commitment to reaching FCF breakeven at mid-40s WTI although we will continue to monitor changes in LOE. We remain Neutral at current levels, as spreads appear fair relative to similarly-rated peers. Risks to our rating include significantly higher or lower commodity prices, execution risk, and potential M&A.</p> <p>Macquarie wrote that the Company's "2Q19 was broadly in line with some moving parts, [but] lower 2H19 production guidance and increased expense guidance may weigh on the name." The analyst observed that Apache's "[t]otal Permian production was slightly better than expected while Alpine High production was roughly in line with our expectations." Macquarie added that the Company was "one of the few firms to be slightly below half of capex spent during 1H19".³⁰⁴</p> <p>Slight Negative – While 2Q19 was broadly in line with some moving parts, lower 2H19 production guidance and increased expense guidance may weigh on the name while increasing the need for smooth execution and the expected increase in takeaway.</p> <p>Guidance Revisions – Due to timing delays and deferral of production, Apache lowered production guidance for Permian Basin oil production and Alpine High production during 2H19. Alpine High volumes are expected to increase materially in 4Q19 alongside the start-up of GCX. Any delay in GCX could have a material impact on that 4Q19 forecast. Apache reiterated its</p>

³⁰⁴ Macquarie, "Apache Corp, Softer 2H19 US Production Guidance," July 31, 2019.

Exhibit 12

Impact Date	Event
	<p>US\$2.4b capex budget for the year and is one of the few firms to be slightly below half of capex spent during 1H19. FY19 LOE/boe, DD&A/boe and cash exploration cost guidance was increased while GP&T guidance was decreased.</p> <p>2Q19 Results – Total Permian production was slightly better than expected while Alpine High production was roughly in line with our expectations. Adjusted Egypt production was below expectations while that was almost entirely offset by better than expected North Sea production. Pricing had been broadly pre-announced although we would highlight the US\$0.26 Permian natural gas pricing as representative of the challenges facing Alpine High production. LOE was sizably above our estimate while GP&T was slightly below.</p> <p>Action and recommendation While Suriname remains a key catalyst for the name, operational execution in the US onshore space remains challenged as the firm faces weak pricing and constrained takeaway. We need to see demonstrated execution on a consistent basis before becoming more positive on the name. Conversely, a poor result in Suriname and continued struggles could place the stock in a challenged position with limited avenues to reassert operational momentum. Reiterate Neutral.</p> <p>Morningstar wrote that the Company’s quarterly production was one percent better than guidance, but “[l]ike its peers, the company was hit by weak realized prices for natural gas and natural gas liquids in the quarter and decided to defer production at its gas-heavy Alpine High assets.” Morningstar “th[ought] the deferrals will be relatively short-lived.” The analyst lowered its fair value estimate to \$25 from \$27, “primarily the result of weaker expectations for near-term benchmark commodity prices and price realizations and a decline in the value of Apache’s stake in Altus Midstream”.³⁰⁵</p> <p>We’ve lowered our fair value estimate for Apache to \$25 per share from \$27 after the release of second-quarter results, primarily the result of weaker expectations for near-term benchmark commodity prices and price realizations and a decline in the value of Apache’s stake in Altus</p>

³⁰⁵ Morningstar, “Apache Corp, Apache Hit by Low Natural Gas and NGL Price Realizations in 2Q,” August 1, 2019.

Exhibit 12

Impact Date	Event
	<p>Midstream. Our no-moat rating remains intact. With the stock trading just above \$24 per share, we think shares are fairly valued.</p> <p>Apache reported quarterly production of 455 thousand barrels of oil equivalent per day. Adjusted production, which excludes Egypt noncontrolling interest and tax barrels, came in at 396 mboe/d, about 1% above management's guidance. Like its peers, the company was hit by weak realized prices for natural gas and natural gas liquids in the quarter and decided to defer production at its gas-heavy Alpine High assets. But with takeaway capacity (Gulf Coast Express) expected to improve by October, we think the deferrals will be relatively short-lived. Well timing delays also hit non-Alpine High Permian production, but management expects to exit 2019 with U.S. oil production on plan. International volumes in the quarter generally met our expectations. Adjusted for recent divestitures, our outlook for companywide long-term volumes is largely intact.</p> <p>In May and July, Apache closed two transactions that effectively exited the company's position in the Western Anadarko Basin and the SCOOP/STACK play. We think the \$560 million in net proceeds was a fair price for the midcontinent assets, and unlike the dip in the near-term commodity price outlook, the sale did not move the needle on our fair value estimate. About a quarter of the sale proceeds were used to reduce debt in July. Apache's capital structure remains debt-heavy, and we expect efforts to reduce debt to continue.</p> <p>MUFG wrote that the Company's "2Q2019 results beat on several metrics with production higher than guidance." The analyst noted that the Company's adjusted EPS and EBITDAX topped consensus estimates. MUFG observed that Apache's "[g]uidance remained intact even with the company deferring dry natural gas production in Alpine High due to low natural gas prices in west Texas, in addition to general delays bringing wells online".³⁰⁶</p> <p>APA's 2Q2019 results beat on several metrics with production higher than guidance both domestically and internationally. Guidance remained intact even with the company deferring dry</p>

³⁰⁶ MUFG, "Apache Corp., Waiting on GCX Pipeline and the Narrowing of Diffs," August 2, 2019.

Exhibit 12

Impact Date	Event
	<p>natural gas production in Alpine High due to low natural gas prices in west Texas, in addition to general delays bringing wells online.</p> <p>Recent events do not present us with cause to change our thesis, and so we are maintaining our \$39 price target and Overweight rating. Our estimates for 2019 express an EV/EBITDAX multiple of 5.0x, a discount to the group average of 5.4x. We view the discount as justified given the company's relatively high exposure to poorly-priced NGLs and Nat Gas.</p> <p>Key Points 2Q19 Earnings: APA reported an adjusted net gain of \$0.11 per share for the quarter, beating our and the street's \$0.07 estimate. Reported adj. EBITDAX of \$994 million came in near our \$996 MM estimate, beating the \$968 MM consensus estimate. U.S. and company-wide production (Ex-Egypt noncontrolling interest) beat guidance of 260 and 396 MBOED, respectively, while International was in line with guided 132 MBOED.</p> <p>Upstream capital spend of \$589 MM in 2Q19 was below the \$675 MM midpoint of guidance as well as our \$658 MM estimate. This reduced spend presents the possibility for 2019 capex to be below their guided ~\$2.4 B.</p> <p>Operations and Outlook: Adjusted (ex-Mid-Con) guidance implies 19% yoy growth from 4Q18 – 4Q19, and their upstream capital program of \$2.4 billion was reiterated. The second half of this year is expected to be more completions weighted than the first half, with planned incremental spend in 3Q19 for Storr development in the North Sea and GOM plug and abandon spend.</p> <p>For the full year they raised their LOE and DD&A unit cost expectations while lowering gathering & transportation spend from \$400 MM to \$350 MM. APA operated 16 rigs on average (down 2 sequentially) in the U.S. onshore with the Permian basin averaging 12 (four rigs in the Midland, three in the Delaware, and five at Alpine High). 51 net wells were drilled and completed in the basin, putting the YTD drilled total at 85, vs 1H18's 109. Overall production of 226 MBOE/d during 2Q19 was down 9% sequentially due to deferred production at Alpine High in response to weak gas realizations as well as timing delays in bringing wells online.</p>

Exhibit 12

Impact Date	Event
	<p>Piper Jaffray wrote that “expectations for the print ... were relatively aligned with the challenging operational backdrop for APA,” but “further weakness in the [Company’s] shares [were] as a result of ... reduced outlook for Permian oil, increased FY19 LOE guidance, etc.” The analyst observed that Apache’s total production in the quarter “was a beat” and free cash flow was “[i]n-[l]ine.” Piper Jaffray remarked that Apache, “[u]nsurprisingly,” lowered second half 2019 production guidance “as a result of the backdrop for gas and NGL pricing”.³⁰⁷</p> <p>Among the most thoroughly exposed E&Ps to pricing headwinds into (and out of) the Qtr (Waha gas, back-end wtd NGL realizations, North Sea gas), expectations for the print (8-9% under-performance MoM vs. the XOP) were relatively aligned with the challenging operational backdrop for APA (EBITDAX of \$994 mm vs. SE of \$1023mm). However, further weakness in the shares as a result of yesterday’s release (reduced outlook for Permian oil, increased FY19 LOE guidance, etc.) could provide an attractive entry point as the implications from a (potentially) successful Suriname appraisal would be no less transformational for the company. Positives: 1) Lower 2Q capex 2) Int’l production trajectory re-affirmed Negatives: 1) Permian oil vol outlook reduced 2) FY19 capex unchanged 3) Extended Alpine High gas deferrals 4) Lower than expected 2Q CFO (ex WC) 5) FY19 LOE guide increased from 7% from prior \$8/boe</p> <p>2Q Headline Beat But Oil Misses; Permian Oil Outlook Tweaked Lower: Headline production was a beat vs SE (396 Mboe/d vs. SE of 387 Mboe/d) with US vols exceeding guide (264 vs. 260 Mboe/d) despite asset sale impacts of ~4 Mboe/d in the Qtr. Nevertheless oil came in below SE ests (197 vs. 201 Mb/d) as Permian oil vols missed by 4 Mb/d (vs. SE of 96 Mb/d) driven by a 30-day delay in the commissioning an electric frac fleet in the Midland (delayed production on 9 wells). Expect forecasts for 3Q Permian oil vols to be revised lower (94-98 Mb/d vs. SE of 100 Mb/d) as well as for 4Q (100-105 Mb/d vs. SE of 105 Mb/d).</p> <p>Incremental Alpine High Gas Deferrals Ahead for 3Q; 4Q Outlook Re-affirmed: Unsurprisingly as a result of the backdrop for gas and NGL pricing, APA is opting to extend the deferment of</p>

³⁰⁷ Simmons Energy, A Division of Piper Jaffray, “Apache Corporation, Q2’19 Quick Look: Challenging Print to Heighten Focus on Suriname,” August 1, 2019, 7:26 AM.

Exhibit 12

Impact Date	Event
	<p>~22 Mboe/d of gas volumes through 3Q in the Alpine High (new 3Q target of 70-75 vs a prior 90 Mboe/d). With gas volumes expected to return in October with the start-up of GCX, the outlook for 4Q remains unchanged at >100 Mboe/d</p> <p>2Q FCF In-Line but benefitted from timing related to Suriname spend: 2Q ex midstream spend of \$589 mm was a beat relative to SE ests (\$650mm) driving a funding deficit of \$10-\$20mm in the Qtr (ex Egypt NCI CFO, midstream spend) in-line with SE estimates despite lower CFO (ex WC) of ~\$70mm (\$570m vs. SE est of \$640mm). However, with the FY19 capex budget unchanged expect some attention on the headline CFO miss (\$680mm vs. SE/street estimates of \$755/\$740mm respectively) which appears driven chiefly by a lower oil mix in the Qtr (aggregate realization of \$37/boe vs. SE est of \$37.75/boe) as unit cash costs were mostly in-line (higher LOE offset by lower costs elsewhere).</p> <p>Altus: Having recently announced its decision to exercise its option on the Shin Oak Pipeline (33% WI) and with the imminent start-up of GCX (with Permian Highway expected online late next year), visibility on the JV-driven growth trajectory for ALTM is improving; nevertheless, with the shares underperforming the broader AMZ index by 70% YTD, look for APA management to address its confidence in ALTM's role toward enhancing the value proposition of its Alpine High resource particularly amidst the possibility of recurring deferment of gas production should pricing headwinds remain.</p> <p>Stephens wrote that the Company's production beat its estimate as "Apache posted solid 2Q19 results (EBITDAX beat [consensus] & lower capex), though 3Q guide is a little noisy as adjusted production guidance is below expectations ... and LOE is biased higher." The analyst expected the Company's reduction in production guidance to be "transitory" and left its fourth quarter production estimate "relatively unchanged".³⁰⁸</p> <p>APA announced 2Q19 results and provided 3Q19 guidance. Total production of ~455 Mboepd was ~1% above our estimate. Notably, Permian oil of ~92.2 Mbopd missed our estimate by ~4% (as a result of timing; 9 less wells completed). EBITDAX of ~\$994 mil. came in ~4%/~5%</p>

³⁰⁸ Stephens, "Apache Corporation, APA First Look: 2Q19 EBITDAX Beat & Capex Below Expectations," August 1, 2019.

Exhibit 12

Impact Date	Event
	<p>higher than our/consensus estimates driven by slightly higher volumes and lower G,P,&T partly offset by higher LOE. Capex of ~\$589 million was ~11%/~12% below our estimate/midpoint of company guide. Overall, Apache posted solid 2Q19 results (EBITDAX beat & lower capex), though 3Q guide is a little noisy as adjusted production guidance is below expectations (increased Alpine deferrals vs. prior forecast & Permian oil lower due to activity timing) and LOE is biased higher. While our 3Q19 volume outlook is biased lower, we anticipate the adjustment is transitory as our 4Q19 forecast remains largely unchanged. We look for additional information on the call today regarding Suriname.</p> <p>KEY POINTS:</p> <p>Preliminary 3Q19 Outlook.</p> <p>Company guided 3Q19 adjusted volumes to 373-383 Mboepd vs. our ~394.3 Mboepd outlook. The delta in our estimate vs. guide was lower Alpine (guide of 70-75 Mboepd), ~16% below our expectations, and Permian oil volumes (guide of 94-98 Mbopd), ~4% below our expectations. Preliminarily, our 3Q19 adjusted production forecast is biased ~4% lower.</p> <p>Preliminarily, our 3Q19 EBITDAX estimate is biased ~4% lower.</p> <p>Preliminarily, our 4Q19 production outlook is tracking and remains relatively unchanged.</p> <p>Following the Company's disclosures on July 31 and August 1, 2019, according to Bloomberg, the average of analysts' price targets for Apache stock decreased to \$30.80 from \$31.57, or -2.46%. Of 31 analysts who published investment ratings for the Company both before and after the earnings announcement, one reduced its rating. (See Exhibit 5C.)</p> <p>Remark: Given that: (i) the Company's "2Q2019 results beat on several metrics with production higher than guidance",³⁰⁹ (ii) "[l]ike its peers, the company was hit by weak realized prices for natural gas and natural gas</p>

³⁰⁹ MUFG, "Apache Corp., Waiting on GCX Pipeline and the Narrowing of Diffs," August 2, 2019. *See also, e.g.*, Bank of America Merrill Lynch, "Apache Corp, 2Q19 Earnings recap: solid quarter in a bad (gas weighted) tape," August 1, 2019, 4:18 AM; JP Morgan, "Apache

Exhibit 12

Impact Date	Event
	liquids in the quarter”; ³¹⁰ and (iii) “expectations for the [Company’s] print ... were relatively aligned with the challenging operational backdrop for APA,” ³¹¹ the statistically significant Company-specific stock price increase on August 1, 2019 is consistent with that expected in an efficient market. ³¹²
10/31/2019	After market close on Wednesday, October 30, 2019, the Company announced its third-quarter 2019 financial results. For the quarter, Apache reported production of 451 mboe/d, revenue of \$1.44 billion, EPS loss of -\$0.45,

Corp, 2Q19:Solid Results in the Quarter, Asset Sales Proceeds Used For Debt Reduction, Production Guidance Lowered,” August 1, 2019, 11:52 PM; Stephens, “Apache Corporation, APA First Look: 2Q19 EBITDAX Beat & Capex Below Expectations,” August 1, 2019.

³¹⁰ Morningstar, “Apache Corp, Apache Hit by Low Natural Gas and NGL Price Realizations in 2Q,” August 1, 2019. *See also, e.g.*, MUFG, “Apache Corp., Waiting on GCX Pipeline and the Narrowing of Diffs,” August 2, 2019; Simmons Energy, A Division of Piper Jaffray, “Apache Corporation, Q2’19 Quick Look: Challenging Print to Heighten Focus on Suriname,” August 1, 2019, 7:26 AM.

³¹¹ Simmons Energy, A Division of Piper Jaffray, “Apache Corporation, Q2’19 Quick Look: Challenging Print to Heighten Focus on Suriname,” August 1, 2019, 7:26 AM. *See also, e.g.*, Bank of America Merrill Lynch, “Apache Corp, 2Q19 Earnings recap: solid quarter in a bad (gas weighted) tape,” August 1, 2019, 4:18 AM.

³¹² Share prices of multiple companies in the energy sector declined sharply on August 1, 2019. All of the companies mentioned in the following article are in my industry index:

The energy sector was the only group of stocks in the S&P 500 in the red at midday on Thursday Two main factors were to blame: A rising U.S. dollar and a gloomy earnings report from the Permian Basin’s largest shale-energy producer. ... [A]n earnings report from Concho Resources (CXO), released Wednesday evening, [] sent its stock down by more than 24% on Thursday. The U.S. oil and natural gas explorer and developer wrote down the value of its assets in the Permian Basin by almost \$900 million. ... The Concho news dragged down many other exploration and production players, including Diamondback Energy (FANG), which fell 6.6%; Pioneer Natural Resources (PXD), down 6.4%; EOG Resources (EOG), down 4.9%; and Cimarex Energy (XEC), down 5.1%.

(*See Dow Jones Institutional News*, “Energy Stocks Are Falling. Blame Concho Resources and the U.S. Dollar. -- Barrons.com,” August 1, 2019, 1:36 PM.)

Exhibit 12

Impact Date	Event
	<p>and adjusted EPS loss of -\$0.29.³¹³ Apache had released preliminary third-quarter average realized prices and updated guidance after the close of trading on October 16, 2019.^{314, 315}</p> <p>The consensus estimates of the Company's revenue and adjusted EPS loss were \$1.44 billion and -\$0.19, respectively.³¹⁶</p> <p>John J. Christmann IV, Apache's chief executive officer and president, commented on the Company's results and discussed the restructuring that was expected to result in "at least \$150 million of combined annual savings":³¹⁷</p> <p style="padding-left: 40px;">During the third quarter, adjusted production exceeded guidance while capital expenditures remained on pace with our full-year guidance of \$2.4 billion In September, we began drilling the first of three committed wells in Block 58 offshore Suriname. We are also nearing first production from two wells in the North Sea, which should establish strong production momentum as we enter 2020</p> <p style="padding-left: 40px;">***</p> <p style="padding-left: 40px;">Apache has historically employed a decentralized, region-focused approach to operations. In recent years, we have centralized certain key activities, and today we see an opportunity to capture greater efficiencies by taking further steps in that direction To accomplish this, we have initiated a comprehensive redesign of our organizational structure and operations that will</p>

³¹³ Apache News Release, "Apache Corporation Announces Third-Quarter 2019 Financial and Operational Results," October 30, 2019. *See also GlobeNewswire*, "Apache Corporation Announces Third-Quarter 2019 Financial and Operational Results," October 30, 2019, 4:12 PM.

³¹⁴ *Globe Newswire*, "Apache Corporation Provides Third-Quarter Supplemental Information and Schedules Results Conference Call for October 31, 2019, at 10 a.m. Central Time," October 16, 2019, 5:02 PM.

³¹⁵ On October 17, 2019, there was a Company-specific stock price increase, which was statistically significant at the 90% confidence level.

³¹⁶ *Reuters*, "Apache Corp reports results for the quarter ended in September - Earnings Summary," October 30, 2019, 5:26 PM.

³¹⁷ Apache News Release, "Apache Corporation Announces Third-Quarter 2019 Financial and Operational Results," October 30, 2019.

Exhibit 12

Impact Date	Event																																	
	<p>position us to be competitive for the long term. This process, which began in late summer, should be largely completed by the end of the first quarter 2020. We are targeting at least \$150 million of combined annual savings and look forward to updating you on our progress in the future. ...</p> <p>Our primary objectives are to deliver competitive, risk-adjusted returns with a long-term moderate pace of growth and improve our free cash flow yield to levels consistent with other mature industrial sectors. As we look to 2020, based on current strip prices, we anticipate our upstream capital budget will be 10% to 20% below this year’s program of \$2.4 billion. This will enable us to generate organic free cash flow that covers the current dividend and puts us on pace to fund a multiyear debt reduction program, while also delivering modest year-over-year oil production growth. We look forward to sharing the details of our 2020 capital plan in February</p> <p>The Company also provided updated 2019 guidance and provided fourth quarter 2019 guidance, as follows:³¹⁸</p> <table><tr><th><u>Daily Production (mboe/d)</u></th><th><u>Aug '19 Guidance</u></th><th><u>Current Guidance</u></th></tr><tr><td>United States</td><td>270 - 280</td><td>270 - 280</td></tr><tr><td>International</td><td><u>195 - 196</u></td><td><u>195 - 196</u></td></tr><tr><td> Reported Production</td><td>465 - 476</td><td>465 - 476</td></tr><tr><td> Less: Egypt Tax Barrels</td><td>26</td><td>25</td></tr><tr><td> Less: Egypt Noncontrolling Interest</td><td><u>36</u></td><td><u>37</u></td></tr><tr><td> Total Adjusted Production</td><td>403 - 414</td><td>403 - 414</td></tr><tr><td>Alpine High</td><td>72 - 75</td><td>72 - 75</td></tr><tr><td colspan="3"><u>Estimated Product Mix: Oil/NGLs/Natural Gas</u></td></tr><tr><td>United States</td><td>37% / 26% / 37%</td><td>37% / 26% / 37%</td></tr><tr><td>International (adjusted)</td><td>70% / 2% / 28%</td><td>70% / 2% / 28%</td></tr></table>	<u>Daily Production (mboe/d)</u>	<u>Aug '19 Guidance</u>	<u>Current Guidance</u>	United States	270 - 280	270 - 280	International	<u>195 - 196</u>	<u>195 - 196</u>	Reported Production	465 - 476	465 - 476	Less: Egypt Tax Barrels	26	25	Less: Egypt Noncontrolling Interest	<u>36</u>	<u>37</u>	Total Adjusted Production	403 - 414	403 - 414	Alpine High	72 - 75	72 - 75	<u>Estimated Product Mix: Oil/NGLs/Natural Gas</u>			United States	37% / 26% / 37%	37% / 26% / 37%	International (adjusted)	70% / 2% / 28%	70% / 2% / 28%
<u>Daily Production (mboe/d)</u>	<u>Aug '19 Guidance</u>	<u>Current Guidance</u>																																
United States	270 - 280	270 - 280																																
International	<u>195 - 196</u>	<u>195 - 196</u>																																
Reported Production	465 - 476	465 - 476																																
Less: Egypt Tax Barrels	26	25																																
Less: Egypt Noncontrolling Interest	<u>36</u>	<u>37</u>																																
Total Adjusted Production	403 - 414	403 - 414																																
Alpine High	72 - 75	72 - 75																																
<u>Estimated Product Mix: Oil/NGLs/Natural Gas</u>																																		
United States	37% / 26% / 37%	37% / 26% / 37%																																
International (adjusted)	70% / 2% / 28%	70% / 2% / 28%																																

³¹⁸ Apache News Release, "Apache, Third-Quarter 2019, Financial and Operational Supplement," October 30, 2019.

Exhibit 12

Impact Date	Event		
	<u>Upstream Capital Investment Guidance (billions)</u>		
	United States	75%	72%
	International	<u>25%</u>	<u>28%</u>
	Upstream Total	\$2.4	\$2.4
	<u>Income Statement Items</u>		
	Upstream Lease Operating Expenses (per boe)	\$8.55	\$8.55
	Gathering, Processing Transmission (millions)	\$350	\$350
	DD&A (per boe)	\$14.75	\$15.25
	Cash Exploration Costs (millions)	\$120	\$140
	General and Administrative Expenses (millions)	\$450	\$450
	Financing Costs (millions)	\$400	\$400
	North Sea Current Tax Expense (millions)	\$240	\$240
	<u>Quarterly Guidance</u>		<u>4Q 2019 Guidance</u>
	Production (mboe/d)		
	United States	286 - 290	
	International (Adjusted)	<u>132 - 135</u>	
	Total Adjusted Production	418 - 425	
	Upstream Lease Operating Expenses (per boe)	\$8.00	
	Cash Exploration Costs (millions)	\$30	
	General and Administrative Expenses (millions)	\$100	
	North Sea Current Tax Expense (millions)	\$55	
	North Sea Cash Taxes Paid (millions)	\$72	

Exhibit 12

Impact Date	Event
	<p>The Company held a conference call with investment analysts the following morning.³¹⁹</p> <p>Bank of America Merrill Lynch wrote that the Company’s adjusted EPS “missed consensus ... but with CFPS [and production] ahead” of guidance. The analyst opined that Apache had “a relatively benign quarter, but which comes with a change in direction away from Alpine high and lower spending commitment in 2020”.³²⁰</p> <p>In line quarter, production beats, cashflow better Apache Corp (ticker: APA) adjusted EPS of (\$0.29) missed consensus (\$0.20) but with CFPS ahead (\$1.68 vs \$1.50). US and Int’l production averaged 266 and 125 mboed respectively (vs guidance of 250-260 and 123 mboed). FY 2019 capex is held at \$2.4bn with top line production unchanged (after the recent sale of mid-con assets). C/flow of \$635mm covered capex of \$590 but fell short of dividends (\$94mm). All in a relatively benign quarter, but which comes with a change in direction away from Alpine high and lower spending commitment in 2020. \$150mm of promised G&A savings from organizational changes could be worth \$4/sh, while the move perhaps puts departure of exploration head Steve Keenan in focus: probably more about Alpine High than anything to do with Suriname.</p> <p>2020 capex guided lower w/ modest growth Preliminary 2020 capex is 10-20% below 2019 which would imply a range of ~\$1.92- \$2.16bn based on an annualized 2019 FY runrate. While APA has been responsive to weakness in strip natural gas prices, our conversations with management indicates plans for further spending cuts that reflect a shift away from Alpine high that was the brainchild of outgoing exploration SVP Steve Keenan. ‘Moderate’ oil growth in 2020 will be the output of optimized free cash flow. Final capex plans will be released in February, but with the Alpine High rig count dropped to 2</p>

³¹⁹ Thomson Reuters, StreetEvents, “APA – Q3 2019 Apache Corp Earnings Call, EVENT DATE/TIME: OCTOBER 31, 2019 / 3:00PM GMT,” October 31, 2019, 11:00 AM.

³²⁰ Bank of America Merrill Lynch, “Apache Corp, 3Q19 earnings recap: solid c/flow, starting to pivot from Alpine high. Watch Suriname,” October 31, 2019, 2:13 AM.

Exhibit 12

Impact Date	Event
	<p>in 4H19 from 5 in 1H19 we see this as confirmation that the Alpine High no longer dominates APA's go forward equity story.</p> <p>Pivot from the Alpine high, Suriname options In our view 3Q19 marks confirmation of a change in strategy that pivots towards other areas in the Permian and a refocus on international assets in the North Sea (with recent in field drilling generating attractive tie-backs) and Egypt where new acreage has potential to extend inventory to sustain long life production. The aggregate portfolio can generate free cash but visibility on L48 portfolio depth needs a vote of confidence from management through its chosen capital allocation. For all of that we recently upgraded APA to Neutral, acknowledging that a share price well below our DCF based view of fair value has no value for a pending exploration program in Suriname, too big to ignore (read our reports 1 & 2) in terms of the embedded option in the share price. Neutral.</p> <p>Barclays wrote that "APA reported a solid Q3 on the numbers with a meaningful CFPS/EBITDAX beat ... vs. Consensus" and the analyst's estimates, "a capex beat (although still on track for FY'19), and in-line reported oil production vs. Consensus/Barclays." The analyst commented that "[a]s anticipated ..., APA is reallocating some capex away from the Alpine High and into the more oily Midland and international areas, which is positive." Barclays noted that "APA slightly reduced guidance for 4Q'19 for both Permian oil and Alpine High".³²¹</p> <p>APA reported a solid Q3 on the numbers with a meaningful CFPS/EBITDAX beat at +12%/+10% vs. Consensus and +8%/+8% vs. Barclays, a capex beat (although still on track for FY'19), and in-line reported oil production vs. Consensus/Barclays. As anticipated (see our APA: Alpine High on Ice: 2020/2021 Breakeven Analysis; Q3'19 Preview(10/21/19) report for details), APA is reallocating some capex away from the Alpine High and into the more oily Midland and international areas, which is positive. However, APA lowered Q4'19 Permian oil production guidance to the low end of the prior range due to unplanned downtime, delays, and maintenance. Similar to other Q3 earnings, 2020 is a focal point. APA's updated 2020 commentary is positive relative to Street expectations as it calls for arguably higher oil growth</p>

³²¹ Barclays, "Apache Corporation, Q3'19 CFPS Beats; 2020 Commentary Better Than Expected," October 30, 2019, 10:23 PM.

Exhibit 12

Impact Date	Event
	<p> (“modest” yoy growth vs. Consensus of +1%) on less capex (~\$1.9-\$2.2bn vs. Consensus of ~\$2.4bn). On strip pricing, management believes this will generate FCF after the dividend. Based on dropping 3 Alpine High rigs and reallocating 2 of them elsewhere in the Permian, and increased activity in Egypt and the North Sea, our initial take is that APA could achieve ~2% oil growth yoy on ~\$2.2bn in capex in 2020. However, at this time we need more details from management to feel confident as our flat yoy Permian oil production means that all the growth needs to come from Egypt and potentially the North Sea, which we think we have less visibility on. </p> <p> Q3’19 Recap APA reported Q3’19 CFPS of \$3.69 or 12%/8% above Street/Barclays estimates, while EBITDAX of \$905mm came in 10%/8% above Street/Barclays. Reported oil production of 228 MBO/d came in-line with both Barclays/Consensus, while total adjusted production of 291 MBOE/d came in 3%/4% above Barclays/midpoint of the guidance range. Upstream Capex of \$590mm (excluding lease acquisition) was 2%/9% below Barclays/Street estimates. </p> <p> FY’19 Capex Guide Unchanged: YTD upstream capex of \$1,776mm implies 4Q’19 capex of ~\$630mm based on unchanged FY 2019 upstream capital guidance of \$2.4bn. Given a drop in Alpine High activity (to 2 rigs from 5 in Q3’19), the sequential increase is likely due to drilling on Maka Central #1 in Suriname. </p> <p> Q4’19 Production Guidance: The midpoint of the 4Q’19 adjusted production guidance range implies an 8% sequential increase in production. APA slightly reduced guidance for 4Q’19 for both Permian oil and Alpine High. </p> <p> In the Permian, the company cited unplanned downtime, maintenance, and delays for the decrease in guidance from 100 – 105 MBO/d to 100MBO/d. Alpine High is now expected to average 94 – 96 MBOE/d in 4Q vs. prior guidance of 100+MBOE/d due to reduced activity and lower-than-expected production from the Blackfoot pad, which will be discussed in more detail on the call. </p>

Exhibit 12

Impact Date	Event
	<p>Cost Savings: Apache announced a \$150mm cost savings initiative, which will target primarily reported G&A but also potentially impact LOE and exploration expenses.</p> <p>Maka Central #1 Update: APA's first Suriname well on Block 58 started drilling September 24, 2019, and is expected to take 30 – 60 days but as of the week ended September 25, drilling had not reached target objectives. The company has exercised its option to drill two additional wells on Block 58.</p> <p>Barclays, in a later report, added that “APA expected to deliver ‘modest oil growth’ on 10-20% less upstream capital yoy, which was positive relative to market expectations.” The analyst observed, regarding the Company’s first well drilling in Suriname, that “[m]anagement commented that at this point APA has ‘not seen anything that would be unexpected’”:³²²</p> <p>APA’s earnings release included higher-level commentary on its 2020 plan and we went into the conference call looking for further color. The release indicated that APA expected to deliver “modest oil growth” on 10-20% less upstream capital yoy, which was positive relative to market expectations that called for only ~1% oil growth on flat capex (see our note: APA: Q3;19 CFPS Beats; 2020 Commentary Better Than Expected, 10/31/19). Although APA will not provide 2020 details until February, after following the bread crumb trail from the conference call we continue to think that APA can achieve “modest” adjusted oil growth above current consensus of ~1% but on capex that is in the upper half of the implied 2020 guidance range (~\$1.9-2.2bn). Assessment of the moving pieces suggests that North Sea production will carry the majority of 2020 oil growth, while Permian and Egypt represent potential growth in 2021 and beyond. In the Permian, we think partial reallocation of capital from Alpine High to the Midland and northern Delaware can hold oil flat with 2019 before resuming growth (~4%) in 2021. However, depending on timing and performance, there could be upside to our forecast here as APA plans to place 25 Midland + northern Delaware wells (or 28% of the FY plan) on production in November/December. Conference call commentary that Egypt oil-directed capital “should be flat to slightly higher” in 2020 coupled with the 6% sequential oil production decline (gross</p>

³²² Barclays, “Apache Corporation, Post Q3’19 Conference Call Thoughts on 2020; Suriname Commentary,” November 1, 2019, 12:23 AM.

Exhibit 12

Impact Date	Event
	<p>basis) in 3Q'19 suggests to us that Egypt likely struggles to grow on a gross basis in 2020. However, given current strip pricing that acts as a tailwind for barrels and higher yoy capex, our model suggests that ~flat production is achievable.</p> <p>Asset Specific Commentary</p> <p>Garten #1 Comp Suggests Strong 1Q20 North Sea Production. The Garten #1 well (online in November 2018) had first month production of 13MBO/d of oil and 70mmcf/d of gas. At 1,200 ft of net pay and 100% interest to APA, we think Garten #2 (in combination with the Storr well coming online in November) could increase North Sea oil production to ~60MBO/d in 1Q'20 compared to estimated 2019 average of 50MBO/d.</p> <p>Egypt commentary suggest longer term upside. APA expects “flat to slightly higher” spend in 2020 compared to 2019 (which has seen 2%, 3%, and 6% sequential declines in 1Q – 3Q'19, respectively) and we are uncertain whether that capex is enough to generate oil growth in next year. However, the trajectory of Egypt oil production is somewhat dependent on the extent to which 2019 capital has been directed to non-producing activity. On the conference call, management noted that APA has built and enhanced its inventory. Reallocation of any implied exploration/evaluation/lease capital into drilling could bias oil production higher than our flattish 2020 production forecast.</p> <p>Alpine High below maintenance: APA's 2 rig guidance in Alpine High is below our estimated maintenance level and cash flow breakeven level. See our 10/21/19 dated Alpine High on Ice: 2020/2021 Breakeven Analysis; Q3'19 Preview note wherein we estimate that maintenance capex is at 3.5 rigs and the cash flow breakeven for the new cryogenic plants is 2.5 rigs. While APA does have a backlog of DUCs pending completion in 2020, we expect Alpine High volumes could decline ~10% Q4'20/Q4'19 vs. conference call commentary that production “is not going to drop massively.”</p> <p>Suriname – “nothing unexpected”: APA's first Suriname well – Maka Central #1 – is expected to TD during November but has reached shallower targets. Management commented that at this point APA has “not seen anything that would be unexpected” (we won't speculate) from the</p>

Exhibit 12

Impact Date	Event
	<p>well. Maka is testing two of the “multiple potential” play types on the block, and Apache has permitted 9 wells in total.</p> <p>Management directly addressed departure of Steve Keenan, saying he had been with the company when Apache entered block 58 but that his role at the time was unrelated to conventional exploration. Furthermore management indicated that Keenan’s resignation was unrelated to activity in Suriname as it was around a disagreement in succession planning.</p> <p>BMO wrote that the Company’s EPS was “below our/consensus” but “Apache reported better 3Q19 EBITDAX/CFO on lower operating costs, while oil met estimates, BOEs exceeded guidance, and capex was in line.” The analyst commented that the Company gave a “mixed update, while 2020 commentary looks better, but full detail won’t be provided until February”:³²³</p> <p>Bottom Line: Apache reported better 3Q19 EBITDAX/CFO on lower operating costs, while oil met estimates, BOEs exceeded guidance, and capex was in line. The Maka Central #1 well in Suriname will reach TD in November and is testing multiple objectives. Capex is expected to be 10-20% lower in 2020, while Apache targets modest y/y oil growth, with FCF covering dividend. Net, net mixed update, while 2020 commentary looks better, but full detail won’t be provided until February.</p> <p>Key Points Lower costs drive CFO beat. Apache reported 3Q19 EPS of -\$0.29, below our/consensus - \$0.21/0.20. EBITDAX (less MI) of \$870mm beat our/consensus \$818/830mm, while CFO (\$636mm pre WC) exceeded our \$607mm. Realizations were preannounced, with lower costs driving better EBITDAX/CFO, while higher DD&A (Alpine High) affected EPS. Upstream capex totaled \$590mm (75% YTD), below our \$642mm (Permian difference vs. our model), but consistent with 1H19 run rate. Consolidated capex was \$1,252 (CFS) including Altus, comparable to our \$1,129mm.</p>

³²³ BMO Capital Markets, “Apache, 3Q Oil in Line With Better BOEs, 2020 Capital Indicated Lower,” October 30, 2019, 6:08 PM.

Exhibit 12

Impact Date	Event
	<p>3Q19 oil in line, BOEs better. Production of 451MBoe/d (-1% q/q) met our estimate, but beat consensus (441MBoe/d), while oil of 228MBbl/d (-4% q/q) compared to BMOe/consensus 230/227MBbl/d. Permian oil of 95MBbl/d (+3% q/q) was below mid-point (94-98MBbl/d), while Alpine (76MBoe/d) beat the high-end (70-75MBoe/d), driving total U.S. BOEs (266MBoe/d) above guidance (250-260MBoe/d). Adjusted International of 125MBoe/d exceeded guidance (123MBoe/d; 127MBoe/d BMOe), while GAAP oil of 128MBbl/d was +1MBbl/d (Egypt/NS +-2/1MBbl/d) versus our model. Egypt entitlement oil was flat q/q, gross dipped to 301MBbl/d (vs. 322MBbl/d in 2Q). Permian 4Q19 oil guidance moved to the low-end (100-105MBbl/d), while Alpine High is 94-96MBoe/d (vs. +100MBoe/d).</p> <p>2020 capex indicated lower. Apache expects 2020 upstream capex ~10-20% below \$2.4Bn 2019 budget, implying \$2.0-2.2Bn, versus our \$2.1Bn excluding Egypt MI/ Altus. Alpine will drop to two (vs. five) rigs, while \$150mm annual cost savings are targeted across the organization. Apache believes 2020 FCF should cover the dividend, while delivering modest y/y oil growth. We think achieving this could be difficult as annualizing YTD CFO (pre WC) equates to \$2.7Bn, while MI (\$313mm) and dividends (\$313mm) imply \$2.04Bn net CF with 2020 benchmark prices below 1Q-3Q19, with GAAP oil down y/y and exit/exit in 2019. That said, reduced Alpine activity, second Garten well (1,200' pay vs. 700' Garten #1), and organizational savings could bridge the gap.</p> <p>Cowen wrote that the Company “beat 3Q production by 2% owing to NGLs. 7% better cash unit costs helped a 9% EBITDAX beat and capex was 3% below our est on deferred completions.” The analyst remarked that Apache’s oil production guidance for Alpine High and Permian were lower, but “Suriname should be done drilling in Nov as expected, and 2020 upstream spend is guided ... in line with our model.” Cowen “note[d] that a success case [in Suriname] would be game changing”.³²⁴</p> <p>APA beat 3Q production by 2% owing to NGLs. 7% better cash unit costs helped a 9% EBITDAX beat and capex was 3% below our est on deferred completions. 4Q Permian oil guidance is 3% lower with Alpine High vols also guided 5%+ lower given activity slowdowns.</p>

³²⁴ Cowen, “Apache Corporation, 3Q19 Quick Take: APA: Slowing Alpine. Waiting on Suriname,” October 30, 2019.

Exhibit 12

Impact Date	Event
	<p>Suriname should be done drilling in Nov as expected, and 2020 upstream spend is guided to 10-20% below '19's \$2.4bn, in line with our model.</p> <p>What to Expect on the Call</p> <p>Permian: 3Q Permian production averaged 254 Mboe/d (+3% vs our estimate) as the company averaged 10 rigs and drilled and completed 47 gross operated wells. APA now projects 4Q Permian oil volumes of ~100 Mb/d (vs our estimate of 105 Mb/d and previous guidance of 100-100-105 Mb/d) as 2H19 oil production has been modestly affected by unplanned downtime and completion schedule delays.</p> <p>Alpine High: Alpine High production averaged 76 Mboe/d in 3Q, 10% higher than our estimate of ~69 Mboe/d as volumes previously deferred due to low Waha prices were returned to production during August and September. Altus is adding 2 cryo units in 3Q/4Q, helping with NGL recoveries and likely resulting in fewer shut ins beyond 3Q. As we had anticipated, current commodity pricing dictates an Alpine High slowdown into 2020. APA has reduced Alpine High drilling activity to 2 rigs (from an average of 5 rigs in 3Q) and is deferring some 4Q completions into 2020. Combined with a lower production outlook for a recent multiwell pad, 4Q Alpine High production guidance is now 5% lower. We would anticipate questions on Alpine High plans for 2020. We previously stated that APA's capacity on GCX (500 MMcf/d) could be filled with 3rd party volumes and likely marketed at a profit.</p> <p>Midland: APA averaged 3 rigs during the quarter in Midland and placed 22 wells online. The company indicated that good results from a Lower Cline test well in the Azalea Field will lead to further evaluation and potential expansion of its core development inventory. We would anticipate some discussion on this and general Midland plans as we see potential for Alpine High capital to be reallocated toward Midland and Egypt.</p> <p>Suriname Could Be a Company "Maka": APA is currently drilling the Maka Central #1 well and expects to reach total depth in November. The well is ~7 miles from the Suriname/Guyana maritime border and 15-20 miles SE of XOM's Haimara gas condensate discovery in Guyana. We expect an update on drilling progress, but would likely not see an announcement around</p>

Exhibit 12

Impact Date	Event
	<p>drilling results until late November (60+ days after spud date). APA also exercised its option to drill 2 additional wells in Block 58 with the Noble Sam Croft. We see roughly \$4/share embedded in APA shares for Suriname currently based on NAV, but note that a success case would be game changing.</p> <p>International: The company has a number of international projects that it may provide results for soon, including well results for its 2nd Garten development well in the North Sea late 4Q and a refocus on Egypt given new seismic data and understanding around expanded acreage. The 2nd Garten well encountered ~1,200 ft of net pay, roughly 60% more than the 1st Garten well, which is now currently producing ~6.4 Mboe/d after nearly one year. APA also expects to bring its first well at Storr online in November.</p> <p>Credit Suisse wrote that the Company's CFPS was below its expectations, EBITDX beat, and production was above guidance "driven entirely by higher gas/NGLs (oil volumes were in line)." The analyst noted that Apache "[m]aintain[ed] FY19 guidance but dials back 4Q volume outlook" and "maintained its FY19 capex budget." Credit Suisse "raised [its] 2020-22 CFPS by ~5% on the higher oil mix and lower costs".³²⁵</p> <p>Shifting capital away from Alpine High helps but still not enough. At current strip prices, APA expects its 2020 upstream spend to be ~10-20% lower YoY implying a budget of ~\$2bn (~17% below consensus) to generate organic FCF generation that covers the current dividend and puts it on pace to fund a multi-year debt reduction program while also delivering "modest" YoY oil production growth. As a result of weak gas and NGL prices, APA will reallocate capital away from Alpine High to more oil-weighted international and Midland Basin assets. While we reduced our 2020+ capex forecasts and increased go-forward oil mix, we still estimate APA is roughly FCF neutral (after dividends) in 2020 and outspends by >\$300MM per annum from 2021+. We raised 2020-22 CFPS by ~5% on the higher oil mix and lower costs (it is targeting \$150MM of cost savings).</p>

³²⁵ Credit Suisse, "Apache Corporation, 3Q Beat, but Tempers 4Q Guidance & 2020 Capex; Raising Estimates on Cost Cuts/Shift to Oilier Plays," October 31, 2019.

Exhibit 12

Impact Date	Event
	<p>Maintains FY19 guidance but dials back 4Q volume outlook. While APA maintained its FY19 capex budget of \$2.4bn and “reported” production guidance of 465-476 MBoed, the latter is due to the large 3Q (gas) beat offsetting reduced 4Q guidance to 480-487 MBoed (from 481-496 MBoed). The 4Q reduction is entirely from the US where it now expects volumes of 286-290 MBoed (from 287-299 MBoed). Notably, due to weak gas and NGL pricing, APA has cut its Alpine High rig count from 5 to 2 rigs and deferring some 4Q completions into 2020; thus, APA now expects its 4Q volumes in the play to be ~94-96 MBoed (from >100 MBoed). It also reduced its 4Q Permian oil guidance to ~100 MBbld (from 100-105 MBbld) due to downtime/maintenance and completion delays.</p> <p>3Q CFPS light but EBITDX beats. Clean 3Q CFPS of \$1.49 was 4% below CSe of \$1.55 due to higher current taxes; however, EBITDX of \$905MM was ~8-9% above expectations. Production of ~451 MBoed was above guidance of ~439 MBoed and ~2- 4% above consensus/CSe driven entirely by higher gas/NGLs (oil volumes were in line). APA generated an organic ~\$170MM FCF deficit in 3Q.</p> <p>Fully valued vs. peers. Our \$20 TP is based on ~5x normalized 2020E DACF. Risks: Permian gas diffs, Alpine High and Suriname execution.</p> <p>Credit Suisse, in a later report, “[u]pdated [its] model after 10-Q, resulting in slight increases to [its] CFPS estimates” for the Company’s subsequent three years. There was no other commentary in the report.³²⁶</p> <p>Evercore wrote that the Company’s third quarter results were “ahead of expectations” as production was “above our/cons. Numbers” and CFPS also “beat” both “driven mainly by volumes and slightly lower costs vs. our estimates.” The analyst observed that Apache “guided to an improved 2H and exit from both the Permian + Alpine High” but the “exit rate guidance for both areas was revised modestly lower.” The analyst opined that the Company’s “reduced activity at Alpine ... should garner attention,” while a Suriname “success case could be a</p>

³²⁶ Credit Suisse, “EPS Changes: 4% or Less, 11/1/19,” November 1, 2019.

Exhibit 12

Impact Date	Event
	<p>company maker.” Evercore reduced its price target to \$26 from \$28 as Apache’s “adjusting [of its] 2020 spend lower (offset by lower costs) equates to lower activity”.³²⁷</p> <p>3Q Production & CF Beat, Guidance</p> <p>Doesn’t Post the operational misses of 2Q, APA had guided to an improved 2H and exit from both the Permian + Alpine High. Infrastructure clearly provided a needed boost to Alpine volumes (APA holds 0.55 Bcf/d on the 2 Bcf/d GCX pipeline). That said, exit rate guidance for both areas was revised modestly lower for a number of indicated issues. (Permian exit at 100 vs. 102.5 and Alpine now at 95 vs. 100+ previously which always assumed full ethane recovery). Neither of these revisions are disastrous, but the reduced activity at Alpine referencing recent results from a pad development and the reserve reduction due to lower prices should garner attention, particularly after the exit of the progenitor of the play from the c-suite last week. Consistent with strategy, APA is managing costs lower with an expectations that 2020 upstream spending will be pared an additional ~15% (implies ~2.0.2.1 Bn upstream spend) next year at current strip. Further, there looks to be ~\$150 mm of G&A + other cost reductions coming from a host of organizational changes. All the above should garner interest while first results from Suriname are expected next month (with 2 additional wells planned thereafter). The outlook hinges more on exploration results than we would be comfortable underwriting, but this was always the potential outcome if existing development (particularly Alpine) didn’t deliver results in 2019. Maintain In Line.</p> <p>3Q Results ahead of expectations. Production at 451 mboe/d was above our/cons. numbers at ~441 mboe/d driven by higher US NGL volumes 10 mbd higher seq.. Realizations were previous disclosed and today’s CFPS beat of \$1.68 was modestly ahead of our \$1.62 and cons. at \$1.53 driven mainly by volumes and slightly lower costs vs. our estimates.</p> <p>4Q guidance lowered, 2020 activity slowing. Permian and Alpine 4Q guidance came down by ~2.5 and 5+ mboe/d respectively. 2020 capex is now expected ~10-20% lower at current strip</p>

³²⁷ Evercore ISI, “Apache, 3Q raises questions, importance of Suriname only grows,” October 30, 2019, 7:39 PM.

Exhibit 12

Impact Date	Event
	<p>(CAL20 WTI is ~\$53/bbl, Brent is at ~\$58/bbl) which we expect will be reduced across the portfolio.</p> <p>Lowering our PT \$2/shr to \$26. While costs have moved lower in AH and mgt. believes it can drive ~\$150mm in ‘operational efficiencies’ going forward, adjusting 2020 spend lower (offset by lower costs) equates to lower activity. We’ve brought down completions in Delaware, Alpine, and Midland by ~8% next year and this slower ramp moves our NAV (on our \$60/\$65/bbl LT WTI/Brent assumption) lower by \$2/shr.</p> <p>What’s in the price for Suriname? The success case could be a company maker if Guyana is the analog, regardless of how low the probability. The stock has retained a premium vs. peers in anticipation and our sustaining FCF DDM framework suggests the business is fairly valued closer to \$15-16/shr at current strip, putting expectations in context.</p> <p>JP Morgan wrote that “APA delivered solid 3Q19 results, with in-line oil volumes and a meaningful cash flow beat at 6% lower capex.” The analyst commented that “[a]s previously signaled by the company, APA has moderated activity at Alpine High ... which will negatively impact the 4Q19 Alpine High guide by 5%” and “initial commentary on 2020 looks consistent with our model, but favorable relative to the Street”.³²⁸</p> <p>JPM View: Stock Reaction-Slightly Positive. APA delivered solid 3Q19 results, with in-line oil volumes and a meaningful cash flow beat at 6% lower capex. The stock has recently been under pressure given the unanticipated resignation of APA’s worldwide head of exploration Steve Keenan last week, but the release indicates that the company’s initial exploration probe offshore Suriname won’t reach TD until November, suggesting that Steven’s resignation was not directly tied to results from Suriname. As previously signaled by the company, APA has moderated activity at Alpine High to 2 rigs vs. 5 rigs in 3Q19 and has decided to defer completions into 2020, which will negatively impact the 4Q19 Alpine High guide by 5%. The company’s initial commentary on 2020 looks consistent with our model, but favorable relative to the Street. APA</p>

³²⁸ JP Morgan, “Apache Corp, 3Q19 Flash: Solid 3Q19 Results; 2020 Commentary Implies Better Capital Efficiency vs. Street,” October 30, 2019, 8:33 PM.

Exhibit 12

Impact Date	Event
	<p>expects upstream capex to be 10% to 20% below the 2019 capex guide of \$2.4 billion, while still generating “modest” YoY oil growth. This implies 2020 capex in the range of \$1.92 to \$2.1 billion, which is consistent with our \$2.1 billion forecast, but 12.6% below the consensus forecast of \$2.3 billion that assumes slight oil growth. At strip pricing, APA believes its organic FCF could fund the dividend and support debt reduction next year. Finally, APA announced another round of belt tightening, with an organizational restructuring expected to reduce annualized costs by \$150 MM per annum.</p> <p>APA reiterated its 2019 production and capex guide: APA reiterated its 2019 production guidance at 471 MBoe/d, which is in-line with consensus at 470 MBoe/d and JPMe at 471 MBoe/d. The company noted that its full year capex was trending on track with the \$2.4 billion guide.</p> <p>JP Morgan, in a later report, wrote that “Apache reported modestly weak results on the back of a miss on adjusted EPS and a decline in EBITDA ... despite production exceeding guidance.” The analyst “await[ed] more updates on the company’s development at Suriname”:³²⁹</p> <p>Positives Production of 391mboe/d exceed guidance of 383mboe/d on the back of strength in the US and internationally. US production declined by 2% YoY to 266mboe/d but exceeded guidance of 260mboe/d. Results were led by a 14% increase in Permian production to 254mboe/d but offset by weakness in the Mid-Continent/Gulf Coast and the Gulf of Mexico.</p> <p>NGL production increased by 20% YoY to 74.4mboe/d on the back of a 38% YoY increase in international production and a 20% increase in US production.</p>

³²⁹ JP Morgan, “Apache Corp, 3Q19: Production Exceeds Guidance Led By US, 2020 Capex Will Be 10-20% Lower, Alpine Guidance Revised Down,” October 31, 2019, 2:43 PM.

Exhibit 12

Impact Date	Event
	<p>The company reiterated its 2019 capex guidance of \$2.4bn and noted it expects 2020 capex to be 10-20% below the 2019 budget. APA is making progress on its >\$150mm in annual savings target and it expects to be largely completed by 1Q20.</p> <p>Liquidity remains ample in our view, with \$163mm of cash on hand, ~\$4.0bn of total revolver capacity, and \$293mm of debt maturing in the next 18 months. Management noted that it plans to retire all of its ~\$1.0bn debt due through 2023 at maturity.</p> <p>Negatives Oil production declined by 6% YoY to 228mbbls/d due to a 3% decline in US production and an 8% decline in international production. Natural gas production declined by 13% YoY to 887mmcf/d as US production declined by 14% YoY and international production declined by 13% YoY.</p> <p>Total International production declined by 9% YoY to 125mboe/d led by an 8% YoY decline in Egypt production to 72mboe/d but flat QoQ. Results were partially offset by a 6% increase in North Sea production to 54mboe/d YoY but this was down 10% from 2Q19.</p> <p>Alpine High production came at 76mboe/d as deferred volumes returned to production in August and September. APA noted that drilling activity at Alpine High was reduced to 2 rigs to defer 4Q completions to 2020. As a result, APA reduced its production guidance at Alpine High by 5% for 2019.</p> <p>***</p> <p>Bottom Line In our view, Apache reported modestly weak results on the back of a miss on adjusted EPS and a decline in EBITDA. Results were weak despite production exceeding guidance for another consecutive quarter on the back of growth in the US but declines internationally. Deferred gas volumes at Alpine High came back during the quarter but the rig count at the play has declined leading the company to reduce its 2019 production guidance for Alpine High. We await more updates on the company's development at Suriname as APA drilled its first well in September.</p>

Exhibit 12

Impact Date	Event
	<p>We would like to see further progress on production growth in the U.S while maintaining capital discipline. On the bright side, 2020 capex is expected to come in 10-20% lower than 2019 capex and the company is making good progress on cost reductions. Management remains committed to reaching FCF breakeven at mid-40s WTI and reducing debt to strengthen the balance sheet. We remain Neutral at current wide levels, as spreads appear to properly reflect the risks in executing management's plans. Risks to our rating include significantly higher or lower commodity prices, execution risk, and potential M&A.</p> <p>Morningstar wrote that the Company's quarterly adjusted production was "above the upper-end of management's guidance." The analyst "expect[ed that] Apache will generate significant free cash flow but fail to generate returns on invested capital that outpace weighted average cost of capital at the company level." Morningstar lowered its fair value estimate for the Company to \$23 from \$25 "primarily reflecting our expectations for lower near-term commodity prices".³³⁰</p> <p>We've lowered our fair value estimate for no-moat Apache to \$23 per share from \$25 after the release of third-quarter results, primarily reflecting our expectations for lower near-term commodity prices. With shares currently trading between \$21 and \$22 per share, we think the stock is fairly valued given our very high uncertainty rating.</p> <p>The company reported quarterly production of 451 thousand barrels of oil equivalent per day. Adjusted production, which excludes Egypt noncontrolling interest and tax barrels, clocked in at 391 mboe/d, above the upper-end of management's guidance. Pricing weighed on financial results, with realized prices on a \$/boe basis falling more than 20% year over year. We've adjusted our near-term expectations for commodity prices in our discounted cash flow model to reflect this lower pricing environment. However, our long-term expectation for crude oil prices of \$55 per barrel for West Texas Intermediate is unchanged. At this level, we expect Apache will generate significant free cash flow but fail to generate returns on invested capital that outpace weighted average cost of capital at the company level.</p>

³³⁰ Morningstar, "Apache Corp, Lowering Our Apache Fair Value Estimate to \$23 Because of Lower Commodity Prices," October 31, 2019.

Exhibit 12

Impact Date	Event
	<p>Discounts to benchmark pricing, particularly for natural gas liquids and natural gas, have been an issue of late, leading to deferrals earlier this year from Apache's gas-heavy Alpine High assets. But deferred volumes returned to production during August and September, and gas differentials improved sequentially in the third quarter. Looking ahead, we expect Apache will continue efforts to reduce debt, as the company's capital structure remains debt-heavy.</p> <p>Piper Jaffray wrote that Apache's "strong operational execution (10% lower unit cash costs) drove robust-enough 3Q results," but "another sequential downward revision to the 4Q volume outlook will likely raise some concerns." The analyst noted that Apache's production beat its estimate and cash flow "was a notable beat vs. SE/consensus".³³¹</p> <p>While strong operational execution (10% lower unit cash costs) drove robust-enough 3Q results (\$636mm in CFO vs. SE of \$582mm) another sequential downward revision to the 4Q volume outlook will likely raise some concerns (highlighted by another sequential revision to Permian oil volumes). And while the weaker outlook may weigh on shares, we expect visibility into a lower cost structure into FY20 as well as pending results from its Maka Central Suriname well to provide offsetting support for the shares. Positives: 1) Opex/FCF Beat, 2) FY20 Capex ~10%-20% below the FY19 budget of \$2.4Bn, 3) Announced \$150mm in annual overhead savings by early 2020. Negatives: 1) Lowered 4Q volume outlook, 2) Alpine High impairment, 3) 3Q US oil vols.</p> <p>3Q Permian Oil Vols In-Line; but Exit Rate Revised Lower (Again) Headline production was a beat vs. SE (391 Mboe/d) driven primarily by higher NGL and NG volumes partially offset by lower than expected US Mid-Con oil volumes with Permian oil volumes of 95 Mb/d at the low-end of guide of 94-98 Mb/d. The 4Q outlook is expected to be negatively impacted by unplanned downtime and completion schedule delays driven by a reduction in 4Q Permian oil vols to 100 Mb/d from a prior 102.5 Mb/d at the mid-pt. Look for</p>

³³¹ Simmons Energy, A Division of Piper Jaffray, "Apache Corporation, Q3'19 Quick Look: A Halloween Mixed Bag: Reese's PB Cups and Bit-O-Honey," October 30, 2019, 9:35 PM.

Exhibit 12

Impact Date	Event
	<p>management to address the persistent setbacks in the Permian that have driven another sequential downward revision to the oil outlook this quarter.</p> <p>Alpine High Activity Reduced; Asset Impairment Recorded In light of prolonged weakness in gas and NGL pricing of late, APA reduced drilling activity in the Alpine High to 2 rigs (vs. a 3Q average of 5) and plans to defer some completions into FY20. The activity reduction is expected to result in a ~5% reduction to 4Q volume guidance to ~95 Mboe/d. And with a disclosed write-down on Alpine High reserves in the Qtr, look for management to frame expectations for Alpine development should pricing headwinds continue into/through FY20 and subsequent implications for Altus and for the FY20 E&P budget. Based on the projected budget of ~\$2.0 Bn in 2020, we expect that reduced activity levels ~1-2 rigs in Alpine High will persist - in-line with our current expectations.</p> <p>3Q FCF Beats on Lower Opex; FY20 Capex to Trend 10-20% below FY19 Driven by a notable 10% beat on unit cash costs, APA CFO (ex WC) of \$636mm was a notable beat vs. SE/consensus of \$582/\$572mm. Subsequently, after adjusting for Sinopec's share of Egypt cash flow results in a FCF deficit of ~\$55mm vs. SE est deficit in excess of ~\$120mm with capex broadly in-line with SE (~\$590mm vs. SE of \$600mm). With visibility on driving operational costs lower (\$150mm in annualized cost savings expected by early 2020) and with a FY20 budget likely to trend in a range of \$1.9-\$2.1Bn (in-line with SE ests but \$400-\$500mm below the street), look for mgmt to frame expectations for FY20 FCF.</p> <p>RISKS TO ACHIEVEMENT OF PT & RECOMMENDATION APA has country-specific risk in Egypt (i.e., political turmoil, instability) where the company is the largest producer. A continuation of weak oil and natural gas prices is an industry risk.</p> <p>RBC wrote that the Company's "core operations appear ahead of expectations" but adjusted EPS was short of the analyst's estimate and consensus, and "CFPS was inline our model but well above Consensus expectations." The</p>

Exhibit 12

Impact Date	Event
	<p>analyst noted there was “[n]o new news on Suriname for now.” RBC commented that Apache’s “4Q19 guidance was lowered and Alpine High activity is being curtailed some but we think this was somewhat anticipated”:³³²</p> <p>Our view: Investor sentiment on APA is highly mixed. The outcome of exploration activity in Suriname could be a high impact game changer but if unsuccessful, causes concern on the strength of the remaining portfolio. Recent APA share weakness reflected concern on the Suriname program following a management departure. However, the earnings report may shed some light on that given an organization restructuring is occurring to reduce costs and centralize activities. No new news on Suriname for now (mid-to-late November results likely) but again considering that the management departure does not appear to be related to the exploration well, we think the stock could trade slightly higher.</p> <p>Summary: Earnings were mixed but core operations appear ahead of expectations. 4Q19 guidance was lowered and Alpine High activity is being curtailed some but we think this was somewhat anticipated. Spending was below expectations and management committed to reduce spending by 10-20% in 2020, which generates free cash flow generation and modest production growth.</p> <p>3Q19 recurring EPS/CFPS of (\$0.29)/\$1.69 compares to our (\$0.09)/\$1.70 and the Consensus (\$0.20)/\$1.51 estimates. CFPS was inline our model but well above Consensus expectations. The EPS miss to our model was mostly higher non-cash DD&A.</p> <p>3Q19 production adjusted for Egypt tax barrels and non-controlling interest of 391 Mboe/d (189 Mb/d oil) was above our 380 Mboe/d (188 Mb/d oil) model and the company’s 373-383 Mboe/d guidance. US production of 266 Mboe/d (100 Mb/d oil) was also above our 256 Mboe/d (100 Mb/d oil) model and the company’s 250-260 Mboe/d guidance.</p> <p>Upstream E&P capital spending of \$590 million was below our \$625 million forecast and the \$620 million Consensus expectations.</p>

³³² RBC Capital Markets, “APA - 3Q19 CFPS Beat Consensus; Suriname Well Still Drilling,” October 30, 2019, 4:57 PM.

Exhibit 12

Impact Date	Event
	<p>2019 Guidance</p> <p>Reduced the 4Q19 adjusted production guidance to 418-425 Mboe/d from 419-434 Mboe/d. The lowered outlook reflects unplanned downtime and delays in the Permian.</p> <p>The 2019 capital budget left unchanged at \$2.4 billion.</p> <p>Stephens wrote that the Company “posted solid 3Q19 results” as EBITDAX was better than its estimate and consensus “driven by lower operating costs (LOE, GP&T, G&A) and higher volumes.” Stephens remarked that “although [Apache’s] 4Q19 adj. production guide is slightly below our expectations, we view this largely as a non issue as the adjustment is predominantly driven by NGL/gas volumes” and “the company’s 4Q19 LOE and G&A guide are below our current estimates”:³³³</p> <p>Apache released 3Q19 results and provided 4Q19 guidance. EBITDAX of ~\$905 million was above our/consensus ~\$836.1 mil./~\$806.5 mil. estimates. The beat vs. our estimate was driven by lower operating costs (LOE, GP&T, G&A) and higher volumes. Production of ~450.6 Mboepd was ~2% above our/consensus estimates. Upstream capex of ~\$590 mil. was ~8% below our estimate. Company guided 4Q19 adj. volumes to 418-425 Mboepd vs. our current ~430 Mboepd estimate, the delta in our opinion predominantly driven by reduced Alpine activity. Preliminarily, our 4Q19 adj. production estimate is biased ~1.6% lower (importantly, our oil estimate is relatively unchanged). Overall, Apache posted solid 3Q19 results (EBITDAX/production beat and lower capex), and although 4Q19 adj. production guide is slightly below our expectations, we view this largely as a non issue as the adjustment is predominantly driven by NGL/gas volumes. Additionally, the company’s 4Q19 LOE and G&A guide are below our current estimates.</p> <p>KEY POINTS: Incremental Detail & Preliminary Outlook.</p>

³³³ Stephens, “Apache Corporation, First Look 3Q19 Results: Better-Than-Anticipated EBITDAX, Prod., & Capex,” October 31, 2019.

Exhibit 12

Impact Date	Event
	<p>2nd Garten well in North Sea encountered ~1,200 feet of net pay vs. ~700 feet from initial Garten discovery. Company anticipates well to come online late 4Q19. Based upon the higher-than-anticipated net pay, our 2020 North Sea outlook could potentially be biased higher.</p> <p>We anticipate Suriname results in November.</p> <p>Preliminarily, our 4Q19 Alpine production outlook is biased ~7% lower.</p> <p>Preliminarily, our 4Q19 Permian oil outlook is biased ~2% lower.</p> <p>Preliminarily, our 4Q19 international volume outlook is biased ~1% higher.</p> <p>Preliminarily, our 4Q19 LOE/boe is biased ~\$0.50 lower, while our 4Q19 G&A/boe is biased ~\$0.22 lower.</p> <p>Based on current strip, Apache anticipates '20 capex to be 10%-20% below its '19 budget of ~\$2.4 billion. The anticipated reduction y/y is in line with our expectations.</p> <p>Preliminarily at strip, we are modeling the company could generate \$200+ in FCF.</p> <p>SunTrust wrote that “Apache reported better-than STRH/Street forecasted EBITDA though lower EPS as production came in above our estimates.” The analyst commented that “[w]hile the company guided down 4Q19 Permian oil and Alpine High production, overall 2019 guidance was unchanged,” and a “reduction in capex in 2020 with modest oil production growth, ... will be viewed favorably given current expectations.”³³⁴</p> <p>Apache reported better-than STRH/Street forecasted EBITDA though lower EPS as production came in above our estimates. While the company guided down 4Q19 Permian oil and Alpine High production, overall 2019 guidance was unchanged. APA additionally guided to a 10-20%</p>

³³⁴ SunTrust Robinson Humphrey, “Apache Corporation, 3Q19 EBITDA Beat; 2019 Guidance Reiterated; Positive Initial 2020 CAPEX/Production Outlook,” October 30, 2019.

Exhibit 12

Impact Date	Event
	<p>YoY reduction in capex in 2020 with modest oil production growth, which will be viewed favorably given current expectations. We expect shares to outperform on the release though much attention is still to be at the Suriname Maka Central #1 expected to TD next month.</p> <p>Apache signaled in its 3Q19 earnings release what we believe is still the beginning of a pivot away from Alpine High with the company dropping down to 2 rigs in 4Q19 (vs. 5 rigs in 3Q19). Apache additionally noted the initiation of a cost savings/organization redesign program with a potential \$150MM in minimum annual savings to be completed by 1Q20. We believe the company's pivot toward higher margin international assets (Egypt/North Sea) should fare well for 2020 free cash flow generation, while we continue to await results out of the first three wells from the Suriname Block 58.</p> <p>SunTrust, in a later report, added that “much of the [Company’s] conference call focus was on the upcoming important first Suriname Block 86 well that the company suggested was going as planned.” The analyst “believe[d] the company’s pivot toward higher margin international assets (Egypt/North Sea) should fare well for 2020 free cash flow generation” and SunTrust “continue[d] to forecast material 2020 production/earnings upside”.³³⁵</p> <p>While Apache highlighted organizational and other cost savings initiatives along with improved domestic and international operational results, much of the conference call focus was on the upcoming important first Suriname Block 86 well that the company suggested was going as planned. While we continue to forecast material 2020 production/earnings upside regardless of the outcome of the Maka Central #1 well (we remain optimistic), the result is surely to have a material impact on the near-term stock price (we view the risk/reward as positive).</p> <p>Reiterate \$32 Price Target Apache reported better-than STRH/Street forecasted EBITDA though lower EPS as production came in above our estimates. While the company guided down 4Q19 Permian oil and Alpine High production, overall 2019 guidance was unchanged. APA additionally guided to a 10-20% YoY reduction in capex in 2020 with modest oil production growth. Apache signaled in its</p>

³³⁵ SunTrust Robinson Humphrey, “Apache Corporation, Coming Down off an Alpine High,” October 31, 2019.

Exhibit 12

Impact Date	Event
	<p>3Q19 earnings release what we believe is still the beginning of a pivot away from Alpine High with the company dropping down to 2 rigs in 4Q19 (vs. 5 rigs in 3Q19). Apache additionally noted the initiation of a cost savings/organization redesign program with a potential \$150MM in minimum annual savings to be completed by 1Q20. We believe the company's pivot toward higher margin international assets (Egypt/North Sea) should fare well for 2020 free cash flow generation, while we continue to await results out of the first three wells from the Suriname Block 58. Adjusting our estimates to reflect our revised 4Q19, 2020, and 2021 outlook, we reiterate our \$32 price target derived from a forward EV/STRHe 2020 EBITDA multiple of 6.0x (5.6x prior and peer average 4.6x) applied to our 2020E EBITDA of \$3,760MM (\$3,961MM prior and consensus \$3,786MM).</p> <p>Execution Focus While Awaiting Suriname Results</p> <p>Apache has made clear the company's intention to minimize activity at Alpine High into year-end and 2020 as the company looks to evaluate performance of 4 multi-well projects in the region, of which a recent project (Blackfoot) has been underperforming expectations. Commentary from management gave us additional confidence in our initial Buy thesis on the name, revolving around a pivot away from Alpine High into higher oil cut, higher margin assets such as non-Alpine High Midland Basin and Egypt, while maintaining consistent activity in the North Sea. We believe we could get initial word from management regarding Apache's first Block 58 well before year-end, where APA is targeting two Cretaceous formations and has not seen anything unexpected as of yet. While near-term we believe the stock will trade heavily on any incremental news out of Suriname positive or negative, we believe the company is positioning itself to generate meaningful free cash flow for debt reduction in 2020.</p> <p>UBS "expect[ed] a neutral reaction to 3Q earnings release" after CFPS "beat" the analyst's estimate and consensus "driven by lower cash costs ... and marginally higher production" versus UBS and consensus. The analyst commented that Suriname "remains the market's focal point" but "[n]o additional information was in the release".³³⁶</p>

³³⁶ UBS, "Apache Corporation, Beat on CF / Capex, Lower 4Q Production Guide, Focus Remains Suriname," October 31, 2019.

Exhibit 12

Impact Date	Event
	<p>We expect a neutral reaction to 3Q earnings release. Positives included (1) Apache reporting 3Q19 CFPS that exceeded consensus expectations by ~12% with (2) adjusted production coming in above the high-end of guidance and (3) capex below. In addition (4) APA appears to be targeting a 10-20% lower capex profile in 2020 that reallocates capital away from Alpine High. We are targeting roughly 1% production growth. (5) Finally, Apache highlighted an organizational and cost savings initiative of at least \$150mn which is expected to be completed during 1Q20. On the negative side; (a) APA missed Permian oil volumes marginally in 3Q, (b) is taking down 4Q volumes to low end of guide tied to pad issue and unexpected maintenance. With all that; focus will remain on Suriname, as it has the potential to change intrinsic value and market sentiment (both ways). Based on our analysis, APA's stock already ascribes a ~\$5/sh of value to Suriname. APA expects to reach total depth in November on its first of three wells, the Maka Central #1. This remains the market's focal point and has resulted in material repositioning into results. No additional information was in the release.</p> <p>Q3 Results (1) CFPS (beat): \$1.68 vs UBSe / Consensus of \$1.52 / \$1.50, driven by lower cash costs (-8% vs UBSe) and marginally higher production (+2% vs UBSe). (2) Total production (slight beat): 450.6mboepd vs UBSe / Consensus of 443.2 / 441.1 mboepd, driven by higher NGLs in the Permian (+6% vs UBSe). Adj. Production (excl. Egypt tax bbls) was 391mmboepd vs. UBSe 386mboepd. (3) Clean Realized pricing (in-line): \$35.28/boe vs. UBSe \$35.59/boe. (4) Total Capex (beat): ~\$590mn was below UBSe / Consensus of \$630mn/\$652mn.</p> <p>Operational Update / Guidance (1) LOE – 4Q LOE of \$8.00/boe and FY LOE unchanged at \$8.55/boe. (2) Production – Total for 4Q of 418-425 mboepd. Guidance for oil in 4Q in the Permian expected at the lower end of guidance of 100-105mboepd. Alpine High guidance in 4Q lowered to 94- 96 mbopd vs. 100+ in prior guidance. (3) Capex – FY of \$2.4bn unchanged vs. previous guidance. The company expects 2020 capex to be 10% - 20% lower vs 2019 at the current strip. Operational Update – APA expects unplanned downtime, delay in completions and well maintenance timing issues in the Permian and reduced activity from its recent Blackfoot pad in Alpine High. Internationally,</p>

Exhibit 12

Impact Date	Event
	<p>APA expects its 2nd Garten well to come online in the North Sea in 4Q19 (1st Garten well ~6.4mboepd).</p> <p>Conference Call Today at 11:00am ET – Dial In: 888-830-1024, Pin: 8089562 Call Focus: (1) Update on Suriname, (2) Details on lower guide for Permian and Alpine High, (3) Details on cost saving initiatives, (4) Update on management changes.</p> <p>Wolfe wrote that the Company “delivered a mixed update with a 3Q CFPS beat offset by a 4Q outlook that’s projecting lower Permian oil and Alpine High volumes.” The analyst noted that Apache’s third quarter EBITDA beat its estimate and consensus “on a gas production beat and lower cash costs.” Wolfe “like[d] the [Company’s] move to reduce G&A costs by \$150MM” in 2020 and “s[aw] the outlook to be a slight positive”.³³⁷</p> <p>Waiting For The Main Event. APA delivered a mixed update with a 3Q CFPS beat offset by a 4Q outlook that’s projecting lower Permian oil and Alpine High volumes. The preliminary 2020 outlook showed a focus on working within the CFO = Capex + Dividend framework and we like the move to reduce G&A costs by \$150MM. This is all noise for the next month though as the outcome of the Maka-1 exploration well (still drilling) will be the stock’s key driver. We see an initial move likely to be 10-15% in either direction and the result will change APA’s 2020 narrative and valuation quickly. Maintain Peer Perform until then.</p> <p>Results. APA reported 3Q19 EBITDA of \$905mm, beating WR/Street at \$861mm/\$839mm on a gas production beat and lower cash costs. 3Q19 adjusted production of 391mboepd exceeded the 373-383mboepd guidance but Permian oil came in at 95mbblspd, on the lower end of the 94-98mbblspd guidance. 3Q19 upstream capex of \$590mm beat our \$630mm forecast and a restructuring is underway and is expected to yield \$150mm in savings.</p> <p>2020 Framework. APA provided a rough outline for 2020, with its budget expected to fall 10-20% vs. \$2.4Bn in 2019, implying \$1.9-\$2.16Bn, with the midpoint below our forecast of a 10% decline. APA projects modest Y/Y oil growth, while generating FCF post dividend to aide debt</p>

³³⁷ Wolfe, “Apache Corp., Suriname Waiting Is Maka-ing Us Crazy,” October 30, 2019.

Exhibit 12

Impact Date	Event
	<p>reduction. With Street forecasting a Y/Y drop in oil and a flattish 2020 budget, we see the outlook to be a slight positive, but look for more color on the oil breakeven and whether APA can achieve significant enough FCF to return capital to shareholders</p> <p>Alpine High Deferrals Resume. APA reduced 4Q Alpine High guidance by 5% to a 94-96 MBOE/d range, which still represents 25% Q/Q growth in the play. The lower forecast is due to APA's deferral of some 4Q completions into 2020 because of low Permian gas/NGL prices and lower than expected performance from its 12-well Blackfoot pad targeting the Woodford. APA also reduced its Permian oil forecast on unplanned downtime and completion delays. APA has dropped to two rigs at Alpine High, from five in 3Q due to the low-price environment.</p> <p>Surimania. The Maka-1 well, located 7 miles from the Guyana/Suriname border near the XOM/HES Haimara discovery, should reach TD in the coming weeks.</p> <p>Following the Company's disclosures on October 30 and 31, 2019, according to Bloomberg, the average of analysts' price targets for Apache stock was unchanged at \$25.76. All 32 analysts who published investment ratings for the Company both before and after the earnings announcement maintained their ratings. (See Exhibit 5C.)</p> <p>Remark: Given the mix of information disclosed, including that: (i) "APA reported a solid Q3 on the numbers";³³⁸ (ii) the Company's "4Q19 guidance was lowered and Alpine High activity is being curtailed some but ... this was somewhat anticipated";³³⁹ and (iii) Suriname "remains the market's focal point" but "[n]o additional information</p>

³³⁸ Barclays, "Apache Corporation, Q3'19 CFPS Beats; 2020 Commentary Better Than Expected," October 30, 2019, 10:23 PM. *See also*, e.g., Evercore ISI, "Apache, 3Q raises questions, importance of Suriname only grows," October 30, 2019, 7:39 PM; JP Morgan, "Apache Corp, 3Q19 Flash: Solid 3Q19 Results; 2020 Commentary Implies Better Capital Efficiency vs. Street," October 30, 2019, 8:33 PM; Simmons Energy, A Division of Piper Jaffray, "Apache Corporation, Q3'19 Quick Look: A Halloween Mixed Bag: Reese's PB Cups and Bit-O-Honey," October 30, 2019, 9:35 PM.

³³⁹ RBC Capital Markets, "APA - 3Q19 CFPS Beat Consensus; Suriname Well Still Drilling," October 30, 2019, 4:57 PM. *See also*, e.g., Barclays, "Apache Corporation, Q3'19 CFPS Beats; 2020 Commentary Better Than Expected," October 30, 2019, 10:23 PM; JP Morgan, "Apache Corp, 3Q19 Flash: Solid 3Q19 Results; 2020 Commentary Implies Better Capital Efficiency vs. Street," October 30, 2019, 8:33 PM.

Exhibit 12

Impact Date	Event
	was in the release,” ³⁴⁰ the statistically insignificant Company-specific return on October 31, 2019 is consistent with that expected in an efficient market.
2/27/2020	<p>After market close on Wednesday, February 26, 2020, the Company announced its fourth-quarter and year-end 2019 financial results. For the quarter, Apache reported production of 487 mboe/d, revenue of \$1.63 billion, an EPS loss of -\$7.89, and adjusted EPS of \$0.08.³⁴¹ The Company’s EPS was impacted by an asset impairment charge of \$3.25 billion, “primarily” attributable to “both the upstream assets in Alpine High and gathering, processing, and transmission assets from the consolidated results of Altus Midstream.”³⁴² Apache had released preliminary fourth-quarter average realized prices after the close of trading on January 23, 2020.^{343, 344}</p> <p>The consensus estimates of the Company’s revenue and adjusted EPS were \$1.61 billion and -\$0.06, respectively.³⁴⁵</p>

³⁴⁰ UBS, “Apache Corporation, Beat on CF / Capex, Lower 4Q Production Guide, Focus Remains Suriname,” October 31, 2019. *See also*, e.g., JP Morgan, “Apache Corp, 3Q19: Production Exceeds Guidance Led By US, 2020 Capex Will Be 10-20% Lower, Alpine Guidance Revised Down,” October 31, 2019, 2:43 PM; RBC Capital Markets, “APA - 3Q19 CFPS Beat Consensus; Suriname Well Still Drilling,” October 30, 2019, 4:57 PM; SunTrust Robinson Humphrey, “Apache Corporation, Coming Down off an Alpine High,” October 31, 2019.

³⁴¹ Apache News Release, “Apache Corporation Announces Fourth-Quarter and Full-Year 2019 Financial and Operational Results,” February 26, 2020. *See also* *GlobeNewswire*, “Apache Corporation Announces Fourth-Quarter and Full-Year 2019 Financial and Operational Results,” February 26, 2020, 5:26 PM.

³⁴² Apache News Release, “Apache Corporation Announces Fourth-Quarter and Full-Year 2019 Financial and Operational Results,” February 26, 2020.

³⁴³ *Globe Newswire*, “Apache Corporation Provides Fourth-Quarter Supplemental Information and Schedules Results Conference Call for Feb. 27, 2020, at 10 a.m. Central Time,” January 23, 2020, 6:08 PM.

³⁴⁴ On January 24, 2020, there was a statistically insignificant Company-specific stock price change.

³⁴⁵ *Reuters*, “Apache Corp reports results for the quarter ended in December - Earnings Summary,” February 26, 2020, 7:42 PM.

Exhibit 12

Impact Date	Event
	<p>John J. Christmann IV, Apache's chief executive officer and president, commented on the Company's results and discussed the Company's spending reduction:³⁴⁶</p> <p>Apache finished 2019 on a strong note. For the year, we achieved our corporate returns objective and came in below our upstream capital investment target of \$2.4 billion. During the fourth quarter, our Permian region delivered the highest oil production in company history at 103,000 barrels per day and exceeded guidance. In December, we signed a joint venture agreement with Total in Block 58 offshore Suriname, which brings in a world-class offshore operator and enables Apache to retain a 50% working interest in the block while significantly reducing our potential exposure to large-scale appraisal and development costs. Our subsequent announcement of a significant oil discovery with the Maka Central-1 well in January 2020 underscores the transformational potential of Suriname Block 58. We are currently drilling the second well on Block 58, Sapakara West-1, and are encouraged by what we've seen so far. We will provide more information after reaching total depth and completing our analysis</p> <p>Despite steady progress on many fronts in 2019, we also encountered some significant challenges, most notably around deteriorating natural gas and NGL prices and the performance of our multi-well development pad tests at Alpine High. To further align our investment program with these dynamics, we plan to significantly reduce our spending in 2020, predominantly in Alpine High.</p> <p>Apache is well-prepared to navigate this challenging and volatile commodity price environment. We are continuing to streamline our portfolio, completing our comprehensive corporate redesign to centralize and align the organization and costs with projected long-term activity levels, investing to improve long-term returns and free cash flow, strengthening our balance sheet, and sustaining our dividend.</p>

³⁴⁶ Apache News Release, "Apache Corporation Announces Fourth-Quarter and Full-Year 2019 Financial and Operational Results," February 26, 2020.

Exhibit 12

Impact Date	Event																										
	<p>While these steps are important to generate long-term returns, we must continue to deliver energy in a responsible manner and are taking a number of steps to prioritize ESG initiatives. ...</p> <p>Apache's portfolio is differentiated through both geographic diversification and an attractive balance of conventional and unconventional development opportunities. We have optionality to fund high-quality, shorter-cycle growth projects in the Permian Basin, Egypt and the North Sea, as well as longer-cycle organic exploration plays. We are choosing to allocate capital to Suriname over the next several years that could otherwise be directed toward near-term growth opportunities elsewhere in the portfolio. This is consistent with our strategy of investing for long-term returns with growth as an outcome</p> <p>The Company also provided 2020 guidance and provided first quarter 2020 guidance, as follows:³⁴⁷</p> <table> <tr> <th><u>Daily Production (mboe/d)</u></th><th><u>Annual Guidance 2020</u></th></tr> <tr> <td>United States</td><td>270 - 285</td></tr> <tr> <td>International</td><td><u>190 - 200</u></td></tr> <tr> <td> Reported Production</td><td>460 - 485</td></tr> <tr> <td> Less: Egypt Tax Barrels</td><td>20 - 24</td></tr> <tr> <td> Less: Egypt Noncontrolling Interest</td><td><u>37 - 39</u></td></tr> <tr> <td> Total Adjusted Production</td><td>403 - 422</td></tr> <tr> <td>Permian Oil (mbo/d)</td><td>97 - 101</td></tr> <tr> <td><u>Estimated Product Mix: Oil/NGLs/Natural Gas</u></td><td></td></tr> <tr> <td>United States</td><td>37% / 28% / 35%</td></tr> <tr> <td>International (adjusted)</td><td>71% / 2% / 27%</td></tr> <tr> <td><u>Upstream Capital Investment Guidance (billions)</u></td><td></td></tr> <tr> <td>United States</td><td>~55%</td></tr> </table>	<u>Daily Production (mboe/d)</u>	<u>Annual Guidance 2020</u>	United States	270 - 285	International	<u>190 - 200</u>	Reported Production	460 - 485	Less: Egypt Tax Barrels	20 - 24	Less: Egypt Noncontrolling Interest	<u>37 - 39</u>	Total Adjusted Production	403 - 422	Permian Oil (mbo/d)	97 - 101	<u>Estimated Product Mix: Oil/NGLs/Natural Gas</u>		United States	37% / 28% / 35%	International (adjusted)	71% / 2% / 27%	<u>Upstream Capital Investment Guidance (billions)</u>		United States	~55%
<u>Daily Production (mboe/d)</u>	<u>Annual Guidance 2020</u>																										
United States	270 - 285																										
International	<u>190 - 200</u>																										
Reported Production	460 - 485																										
Less: Egypt Tax Barrels	20 - 24																										
Less: Egypt Noncontrolling Interest	<u>37 - 39</u>																										
Total Adjusted Production	403 - 422																										
Permian Oil (mbo/d)	97 - 101																										
<u>Estimated Product Mix: Oil/NGLs/Natural Gas</u>																											
United States	37% / 28% / 35%																										
International (adjusted)	71% / 2% / 27%																										
<u>Upstream Capital Investment Guidance (billions)</u>																											
United States	~55%																										

³⁴⁷ Apache News Release, "Apache, Fourth-Quarter 2019, Financial & Operational Supplement," February 26, 2020.

Exhibit 12

Impact Date	Event
	<div> <div>International</div> <div>~45%</div> </div> <div> <div>Upstream Total</div> <div>\$1.6 - \$1.9</div> </div>
	<div> <div>Quarterly Guidance</div> <div>New 1Q 2020 Guidance</div> </div> <div> <div>Production (mboe/d)</div> <div></div> </div> <div> <div>United States</div> <div>295</div> </div> <div> <div>International (Adjusted)</div> <div>140</div> </div> <div> <div>Total Adjusted Production</div> <div>435</div> </div> <div> <div>Permian Oil (mbo/d)</div> <div>100</div> </div> <div> <div>Alpine High (mboe/d)</div> <div>90 - 94</div> </div> <div> <div>Upstream Capital Investment (millions)</div> <div>below \$490</div> </div> <div> <div>Upstream Lease Operating Expenses (per boe)</div> <div>\$8.25</div> </div> <div> <div>Gathering, Processing, and Transmission (millions)</div> <div>\$75</div> </div> <div> <div>DD&A (per boe)</div> <div>\$13.50</div> </div> <div> <div>Cash Exploration Costs (millions)</div> <div>\$30</div> </div> <div> <div>General and Administrative Expenses (millions)</div> <div>\$120</div> </div> <div> <div>North Sea Current Tax Expense (millions)</div> <div>\$60</div> </div> <div> <div>North Sea Cash Taxes Paid (millions)</div> <div>\$50</div> </div> <p>The Company held a conference call with investment analysts the following morning.³⁴⁸</p> <p>Bank of America Merrill Lynch wrote that the Company had “a solid end to the year” as adjusted EPS was “a solid beat vs Street ... and our estimate ... and [was] largely a function of lower cash costs.” The analyst noted that the Company’s cash flow beat consensus. BofAML commented that the Company’s “2020 capex [was] guided</p>

³⁴⁸ Thomson Reuters, StreetEvents, “APA – Q4 2019 Apache Corp Earnings Call, EVENT DATE/TIME: FEBRUARY 27, 2020 / 4:00PM GMT,” February 27, 2020, 11:00 AM.

Exhibit 12

Impact Date	Event
	<p>lower,” “cementing the shift away from the Alpine High and historically weak gas and NGL prices,” and the “production guide [was] in line”:³⁴⁹</p> <p>EPS and c/flow beats: all eyes on Suriname APA adjusted EPS of \$0.08 is a solid beat vs Street (-\$0.07) and our estimate (-\$0.10) and largely a function of lower cash costs, noting realizations were preannounced on 01/23. Cash flow of \$778mm before w/c was ahead of Street (\$726mm); including a \$42mm benefit to w/c, cash flow totaled \$820mm. Capex came in at \$590mm and compared to Street at \$614mm, bringing FY to \$2.37bn and slightly under guidance of \$2.4bn. Permian production at 103mbod beat guidance (100mbod); however, APA had lowered guidance previously due to unplanned downtime noting prior guidance was 100-105mbod. All in, a solid end to the year that ended with no rig activity in the Alpine High, drawing a line under the negative rate of change that characterized APA for the last four years.</p> <p>2020 capex guided lower, production guide in line 2020 capex of \$1.6-1.9bn is significantly lower than even APA’s latest indication of a ‘10-20% drop from 2019’ levels (which implied closer to \$2bn). We see this cementing the shift away from the Alpine High and historically weak gas and NGL prices. Capital flexibility is a major priority with management indicating that activity could be further limited if spot pricing deteriorates further from current levels – but capped at \$1.9bn if they are to improve. FY 2020 US oil guidance looks in line with Street expectations.</p> <p>Buy rating reflects APA’s rate of change APA’s investment case is anchored on two issues: assessment of fair value for overlooked free cash anchored on Egypt and a potential rerating on Suriname exploration. But in our view, the latter is key and offers a chance to ‘de-risk’ an extensive exploration backlog that is material for a company of APA’s size. We have previously assessed ‘risked’ exploration value of APA’s Block 58 at ~\$17/sh of which \$8 is in our PO. But comments from management on the keenly</p>

³⁴⁹ Bank of America Merrill Lynch, “Apache Corp, 4Q19 earnings recap: solid quarter turns attention to encouraging Suriname #2 well,” February 27, 2020, 2:57 AM.

Exhibit 12

Impact Date	Event
	<p>awaited Sapakara West-1 well that it is ‘pleased with what it has seen so far’, with plans for a series of tests are encouraging for a potential 2nd discovery in our view, as you don’t test dry holes! Critically, we believe a second discovery would reset the market’s view of the ‘riskied’ value of the block, noting APA’s shares have given up most of the value discounted after the Maka discovery. We believe APA stands as one of the highest potential ‘rate of change’ opportunities amongst the US oils. We adjust our estimates to reflect new guidance.</p> <p>Barclays wrote that “APA reported a solid Q4’19 on the numbers with a substantial CFPS/EBITDAX beat” versus the analyst’s estimates and consensus. The analyst remarked that Apache’s “2020 plan is also a positive vs. our expectations on 12% lower than expected capex coupled with only 1% lower adjusted production.” Barclays added that “[a]s anticipated, APA is completing its pivot away from Alpine High”:³⁵⁰</p> <p>APA reported a solid Q4’19 on the numbers with a substantial CFPS/EBITDAX beat at +13%/+9% vs. Consensus and +17%/+8% vs. Barclays, lower capex vs implied 4Q guidance, and adjusted production that beat Barclays/guidance mid-point by 2%. The 2020 plan is also a positive vs. our expectations on 12% lower than expected capex coupled with only 1% lower adjusted production. As anticipated, APA is completing its pivot away from Alpine High (zero rigs in 2020 and potential volume curtailment depending on Waha prices) as the company prepares for increased activity in Suriname. Capital efficiency is better than suggested by previous Management comments on the 2020 Outlook made during the Q3’19 earnings call. 2020 capex of \$1.6 - \$1.9Bn is below management’s prior commentary of 10-20% lower yoy with production that is roughly in line with prior commentary of “modest growth.” In the US, APA expects 0 - 4% Permian oil growth on total US capex of \$880 - \$1,045MM, ~in line with our 2% growth estimate but on significantly lower capex (we currently model ~\$1Bn of non-Alpine high capital), implying either lower well costs or higher productivity vs. our assumptions.</p> <p>With the 2020 plan geared toward FCF generation after dividend at \$50 WTI, and excess cash earmarked for future debt reduction, we think management is clearly signaling that it will preserve capital for potential Suriname development spending. And while even assuming a 3</p>

³⁵⁰ Barclays, “Apache Corporation, Q4’19 CFPS Beats; 2020 Commentary Better Than Expected,” February 27, 2020, 12:16 AM.

Exhibit 12

Impact Date	Event
	<p>FPSO development (140 MBO/d capacity, leased) we don't think APA's net Suriname capital requirement (including exploration) would exceed \$350MM in any given year, we think going to "maintenance mode" makes sense in the current environment.</p> <p>While Q4'19/2020 represent marginal positives vs prior expectations, share performance over the next year is likely driven by Suriname updates, specifically exploration well results. Management is "encouraged" by results so far on the Sapakara-1 well (although the well has not reached total depth yet) and APA has started working with JV partner Total (covered by Lydia Rainforth) on an appraisal plan for Block 58 that will be submitted to the state-owned oil company "in the coming months." We are interested in management commentary on a potential development timeline.</p> <p>Q4'19 Recap APA reported Q4'19 CFPS (excluding working capital) of \$2.18 or 13%/17% above Street/Barclays estimates while EBITDAX of \$1,093mm was 9%/8% above Street/Barclays. Total adjusted production of 430 MBOE/d was 2% above both the midpoint of Q4'19 guidance and Barclays estimates, and total reported oil production of 238 MBO/d was 2% above/in-line with Street/Barclays. Upstream Capex of \$590mm (excluding lease acquisition) was 5% below the level implied by full year guidance, and 4%/1% below Street/Barclays estimates.</p> <p>2020 Plan Around FCF Positive after dividend at \$50 WTI: APA's \$1.6 - \$1.9Bn capital plan is below the ~\$1.9 - \$2.2bn range implied by management's Q3'19 earnings call commentary calling for a 10 – 20% reduction in upstream capital vs. the 2019 budget of \$2.4bn, and is 19% below current Bloomberg consensus (although unclear is consensus reflects upstream capital estimates only). The guide is 12% below our current estimate of \$1,996MM.</p> <p>Capital guidance range corresponds to "flat to low single digit adjusted total company oil growth" and rig count ranges of 5 – 6 in the Permian (0 Alpine High), 9 – 11 in Egypt, and 2-3 in the North Sea.</p>

Exhibit 12

Impact Date	Event
	<p>In the US, total production guidance of 270 – 285 reflects \$1.6bn of capex and Alpine High lean gas curtailments from March – October on the low end, and \$1.9bn of capex and no curtailments at the high end.</p> <p>FY 2020 Permian oil production guidance of 97 – 101 MBO/d based on a 5-6 rig program has similar oil production to Barclays current 99 MBO/d estimate but on less rigs (we current model 7.5 non Alpine High rigs average for the year).</p> <p>BMO wrote that “Apache reported a strong 4Q19 with oil above consensus driven by Permian and Egypt, which, along with lower LOE/G&A, contributed to EPS/EBITDAX above Street estimates, with capex below guidance.” The analyst commented that the Company’s “Suriname commentary on the Sapakara West exploration well is positive”.³⁵¹</p> <p>Bottom Line: Apache reported a strong 4Q19 with oil above consensus driven by Permian and Egypt, which, along with lower LOE/G&A, contributed to EPS/EBITDAX above Street estimates, with capex below guidance. Suriname commentary on the Sapakara West exploration well is positive, while appraisal plans for the Maka Central discovery will be submitted in coming months. Upstream capital for 2020 is lowered from prior commentary, with oil now flat to up low-single digits (vs. prior modest growth).</p> <p>Key Points 4Q19 EBITDAX/oil beats on lower capex. Apache reported 4Q19 EPS of \$0.08 (excluding a \$3.2Bn pretax impairment), above consensus of -\$0.07, while consolidated EBITDAX of \$1,093mm beat our \$993mm, as did CFO (pre-working capital) of \$820mm (vs. BMOe \$737mm). GAAP production of 487MBoe/d exceeded our/consensus 477/470MBoe/d, while adjusted production of 430MBoe/d was above guidance (418-425MBoe/d). GAAP oil of 238MBbl/d (up 4.1% Q/Q) also beat our/ consensus 234MBbl/d, driven by the Permian (+3MBbl/d vs. guidance) and Egypt (+2MBbl/d vs. BMOe), with North Sea in line. Realizations were pre-announced, while lower LOE and G&A contributed to the headline EBITDAX beat.</p>

³⁵¹ BMO Capital Markets, “Apache, 4Q19 EBITDAX/Oil Better; Preliminary Suriname Commentary Positive,” February 26, 2020, 9:24 PM.

Exhibit 12

Impact Date	Event
	<p>Upstream capex of \$590mm was below our \$627mm, with the full year coming in \$34mm below budget, while Altus capex was within the range for 4Q19.</p> <p>2020 outlook similar to 3Q19 commentary, awaiting details. Apache guided 2020 oil growth of flat to up low-single digits on an adjusted basis (Central was sold mid-2019), which compares with 3Q19 commentary of modest year-over-year oil production growth. That said, 2020 upstream capital is now budgeted at \$1.6-1.9Bn (down 26% Y/Y), below the implied \$2.0-2.2Bn (down 10-20% Y/Y) commentary from 3Q19. The 4Q19 operational supplement will likely contain more details but hasn't been published as of time of writing. We note that 2020 consensus oil production is flat Y/Y. Apache is drilling the Sapakara West exploration well in Suriname, and the well has drilled through the shallower Campanian interval with drilling continuing toward the deeper Santonian objectives. Apache is "encouraged by what it's seen so far" and will provide more information after reaching total depth and completing its analysis, which consists of open-hole logs, pressure tests, fluid and core samples, and associated laboratory analyses. Also, notable an appraisal plan for the Maka Central discovery will be submitted to Staatsolie in coming months.</p> <p>Cowen wrote that the Company "beat 4q oil production by 1 pct and DCPS by 7 pct" and "2020 oil growth is guided in line." The analyst commented that "[t]he market awaits incremental details on APA's second Suriname well, but should generally have expected the moves to defer Alpine High activity and run a more capex efficient model." Cowen noted that the Company's 2020 capex guidance was "below expectations".³⁵²</p> <p>Apache beat 4q oil production by 1 pct and DCPS by 7 pct. 2020 oil growth is guided in line with our model at single digit growth for roughly 10 pct less capex as activity at Alpine High is shelved for '20. The market awaits incremental details on APA's second Suriname well, but should generally have expected the moves to defer Alpine High activity and run a more capex efficient model.</p> <p>What to Expect on the Call</p>

³⁵² Cowen, "Apache Corporation, 4Q19 Quick Take," February 26, 2020.

Exhibit 12

Impact Date	Event
	<p>2020: We would anticipate a heavy focus on 2020 plans during the call as the earnings release lacked a lot of details. APA released an upstream capital budget of \$1.6B-\$1.9B, below expectations as consensus was at ~\$2.2B for 2020 capex and it had previously given an early 2020 plan that included upstream capex 10-20% below 2019 level of \$2.4B (or ~\$1.9B-\$2.2B), modest y/y oil production growth, and positive FCF post dividend. The company now expects its current projected capital level to deliver flat to low single digit total company oil production growth on an adjusted basis vs our modeled 4% y/y adjusted oil growth on \$2.0B D&C capex. The company indicated that should oil prices collapse further, it is prepared to reduce activity and capex. And if oil goes higher, its priority will be to retain cash for debt reduction as it does not anticipate increasing capital investment above \$1.9B. As expected, the decline in upstream capex mostly comes from Alpine High where there were no rigs drilling at year-end vs an average of 5 rigs in 3Q19.</p> <p>Suriname: No significant Suriname updates were given with 4Q earnings, though we would anticipate continued focus on it as APA is working with partner TOT on an appraisal plan that will be submitted in the coming months. Recall that APA announced an oil discovery at Maka Central-1 back in early Jan and stated that the Sam Croft would drill the next wells in Block 58, starting with the Sapakara West prospect located ~12 mi SE of the Maka Central discovery, testing upper Cretaceous targets in the Campanian & Santonian intervals. APA indicated that drilling is ongoing at Sapakara-1 as it has drilled through the shallower Campanian and continues toward the deeper Santonian. Once the well reaches total depth, APA will run tests & analyses and the rig will drill a 3rd & likely 4th exploration test in Block 58. We previously stated that the confirmed net pay of Maka Central-1 does indeed carry potential for a multimillion bbl discovery, but noted that resource is impossible to ascertain at this time. Further, the features of the partnership with TOT result in multiyear lags before significant cash flow from any development would accrete to APA.</p> <p>Organizational Redesign: Back during 3Q19 earnings, APA announced that it had initiated a comprehensive redesign of its organizational structure and operations. The process began last summer and should be largely completed by end of 1Q20. We would anticipate additional color</p>

Exhibit 12

Impact Date	Event
	<p>on this redesign as the company indicated that it is targeting at least \$150MM of combined annual savings.</p> <p>Guidance Highlights FY20 upstream capex guidance of \$1,600MM-\$1,900MM vs our estimate of \$2,095MM and consensus for total capex of \$2,163MM.</p> <p>FY20 adjusted oil production growth of flat to low single digits vs our estimate of 4%.</p> <p>Credit Suisse wrote that the Company’s “4Q19 EPS/EBITDX/oil beat” and total production “came in at the top-end of guidance & ~3% above consensus.” The analyst added that the Company had a “[b]etter 2020 guide: total/oil volumes near expectations, but with much lower capex”:³⁵³</p> <p>Better 2020 guide: total/oil volumes near expectations, but with much lower capex. APA announced a 2020 upstream capex budget of ~\$1.6-\$1.9bn (down ~26% YoY), well below consensus/CSe >\$2bn & its prior expectations for capex to be down 10- 20% YoY (based on ~\$54/Bbl WTI at the time). Despite lower than expected capex, full year “reported” production guidance of ~460-485 MBoed (flattish YoY) was slightly above consensus at the midpoint, with implied oil volumes of ~235 MBbld (flat/low-single digit YoY growth) largely in line with expectations. Post-update, our 2020E FCF improved by ~\$300MM at strip prices (~\$50/Bbl), though we still have APA generating a ~\$450MM FCF deficit post-dividends (CSe >\$56/Bbl to fund capex & dividend organically).</p> <p>Other key takeaways: 1) no explicit news on Sapakara West (2nd Suriname exploration well following initial discovery earlier this year), but APA noted it is “encouraged” by what it has seen so far which we expect will be interpreted bullishly (we estimate its shares are already pricing in >2 BBoe of gross discoveries on the block); 2) choosing to allocate capital to Suriname > short-cycle assets over the next several years, which to us infers flattish production</p>

³⁵³ Credit Suisse, “Apache Corporation, 4Q Beat, Better 2020 Guide & Encouraged by 2nd Suriname Well . . . But Fully Valued Stock,” February 27, 2020.

Exhibit 12

Impact Date	Event
	<p>in 2021+; our revised forecasts imply flat/modestly declining volumes in 2021-24 (vs. +1-2%/annum prior), though given lower capex APA's aggregate FCF deficit narrows >\$1bn (still outspending CF/dividends by ~\$500MM/annum); 3) proved reserves fell ~18% YoY to ~1 BBoe (ex-asset sales, still down ~10% YoY on negative price-related revisions to US gas/NGLs i.e. Alpine High). We trimmed 2022+ CFPS estimates on lower production (2022 to \$6.90 from \$7.25).</p> <p>4Q19 EPS/EBITDX/oil beat. Adjusted EPS of \$0.08 was well above consensus/CSe (\$0.07)/(\$0.06). Clean EBITDX of ~\$1.1 billion (-4% YoY) was ~10-15% above expectations on stronger than expected production and per unit cost. Total production of ~487 MBoed came in at the top-end of guidance & ~3% above consensus, with oil volumes of ~238 MBbld ~2% above consensus. E&P capex of ~\$590MM (~4% below consensus) kept APA within its full year budget of \$2.4bn & enabled a ~\$140MM FCF surplus (after divi) in 4Q.</p> <p>Fully valued vs. peers. Our \$20 TP is based on ~6.5x normalized 2020E DACF. Risks: oil prices, exploration.</p> <p>Evercore wrote that the Company reported “a solid operational 4Q with production ahead of expectations” and CFPS that beat the analyst’s estimate “largely due to the volumes beat.” Evercore cautioned that “2020 shows the overhang at AH” as “the challenges facing APA at Alpine High have only gained clarity with mgt. electing to book ~\$3.2+ Bn in impairments ... and a 2020 outlook that will see significantly lower capital directed to the asset”.³⁵⁴</p> <p>APA printed a solid operational 4Q with production ahead of expectations, 2020 shows the overhang at AH</p> <p>To say there have been several impactful developments at APA since 3Q reporting would be an understatement. With what started as little disclosure on its much anticipated Suriname prospect including a press release in early December that left investors with more questions than answers, APA's farm-down to TOT (N/R) at year-end and ultimately successful discovery at Maka-1</p>

³⁵⁴ Evercore ISI, “Apache, US Onshore challenges persist, Suriname discovery helps offset,” February 27, 2020, 9:13 AM.

Exhibit 12

Impact Date	Event
	<p>(announced last month) served to dramatically heighten expectations for the stock. This is good, because redirecting focus away from the onshore business was certainly welcomed particularly as Permian NGL and nat gas fundamentals continue to deteriorate in the face of a structurally oversupplied market with little relief expected from upcoming transportation adds. Fast forward to last night's year end disclosure and the challenges facing APA at Alpine High have only gained clarity with mgt. electing to book ~\$3.2+ Bn in impairments (incl. a \$545mm exploration expense impairment) and a 2020 outlook that will see significantly lower capital directed to the asset (no rigs at YE in AH). 2020's budget disclosure and production guidance shows where APA is looking to prioritize dollars (Int'l + Permian oil) as well as moving Suriname forward (with a 3rd and 'likely' 4th expl. well planned) we suspect investors increasingly focus on how APA can pull nearer term levers (Egypt/North Sea) to help bolster cash flow and bridge the gap until Suriname moves closer to appraisal. Maintain In Line.</p> <p>4Q Results: Production. 4Q production of 487 mboe/d excluding Egypt NCI and tax bbls was 430 mboe/d which was ~5 mboe/d ahead of guidance (418-425 mboe/d) and above our estimate of 425 mboe/d. US production beat as well at 298 mboe/d, above the high end of guidance of 286-280 mboe/d. Both total oil (237.8 mbo/d) and NGLs (83.1 mbd) were above our estimates of 229 mbo/d and 75 mbd respectively.</p> <p>CFPS of \$1.95 (pre-W/C and excl. impairments) beat our estimates of \$1.87 largely due to the volumes beat (realizations were pre-announced). Costs were generally inline with modestly lower LOE and transportation expense being recorded (vs. our estimates).</p> <p>2020 guidance. APA's 2020 budget (E&D) is targeting ~\$1.75 Bn (26% lower than 2019) with commentary suggesting nat gas/NGLs driving lower capex at Alpine High (ATLM is guiding ~\$330mm in capex). 2020 production guidance calls for low single digit yoy oil growth.</p> <p>What to look for on the call? Allocation, production trajectory for US vs. International? With guidance implying little growth in 2020 we expect questions on mgt's expectations for production across the portfolio. We</p>

Exhibit 12

Impact Date	Event
	<p>suspect there will be details outlined for US mboe declines (oil volumes expect to be ~4% higher). We also expect questions on APA's increased focus on international assets in Egypt and, or the North Sea and Suriname as well as the \$200mm allocated to 'exploration'.</p> <p>Timing and capital call on additional exploration wells in Suriname. Last night's release confirmed ongoing drilling for a 2nd Suriname exploration well (Sapakara West-1) in Block 58, 12 miles SE of the Maka-1 discovery with plans to drill a 3rd and 'likely' a 4th exploration well in Block 58. Look for questions on timing and capital budgeted for this activity. We also expect questions on why mgt. was 'encouraged' by initial results at the Sapakara well (having already drilled through the shallower Campanian interval).</p> <p>Strip pricing, flexibility and hedging. Look for questions on how improvements in the commodity price environment could potentially alter the current budget. APA has said it won't increase upstream spending above \$1.9 Bn (the upper end of guidance) and we would be interested in where uses of free cash might be directed if oil moves higher (CAL20 Brent ~\$53/bbl). We'd also expect questions on changes to the company's hedge profile (no new disclosure last night and looks to be unhedged 2020 oil) and whether this could change moving forward.</p> <p>JP Morgan "expect[ed] a positive reaction to the print, which featured a 12% cash flow beat at 5% lower capex, and positive commentary on 2020, with the company anticipating ~15% lower capex relative to consensus, while delivering flat to LSD oil growth adjusted for asset sales." The analyst commented that "management[had] confidence in the potential of Suriname to be a future cash flow driver".³⁵⁵</p> <p>JPM View: Stock Reaction-Positive. Despite a material write-off at Alpine High and Altus, we expect a positive reaction to the print, which featured a 12% cash flow beat at 5% lower capex, and positive commentary on 2020, with the company anticipating ~15% lower capex relative to consensus, while delivering flat to LSD oil growth adjusted for asset sales. The company has not</p>

³⁵⁵ JP Morgan, "Apache Corp, 4Q19 Flash: Upside CF, More Capital Efficient 2020 Oil Growth, and Upbeat Suriname Comments; Stock Reaction-Positive," February 26, 2020, 8:36 PM.

Exhibit 12

Impact Date	Event
	<p>yet completed the drilling of the Sapakara West-1 well, but management noted that it is “encouraged by what we’ve seen so far.” This suggests they may have found pay in the shallower Campanian interval as they are now drilling toward the deeper Santonian objective. They also exercised an option to drill a third well on the block, with a fourth well likely to be drilled as well. CEO John Christmann indicated that APA plans to prioritize capital allocation to Suriname “over the next several years” vs. short-cycle opportunities, which we think is indicative of management’s confidence in the potential of Suriname to be a future cash flow driver. Our only quibble was the lack of specifics regarding the 2020 guide, but we suspect these will be provided in the 4Q19 deck tomorrow.</p> <p>2020 production and capex guide: APA guided to 2020 capex of \$1.75 billion, 15.5% below consensus at \$2.07 billion and 14.2% below JPMe at \$2.04 billion. APA could further reduce activity and cut capex if oil prices further deteriorate from current strip prices. However, APA doesn’t foresee an increase in capex above \$1.9 billion if oil prices improve, but would prioritize cash retention to reduce debt. APA expects to deliver flat to low-single-digit total company oil production growth on an adjusted basis.</p> <p>Operations update: APA’s Permian production of 288 MBoe/d was 4% above our JPMe of 277 MBoe/d. APA averaged 8 rigs and completed 56 gross operated wells. APA completed 19 gross-operated wells in the Midland Basin and 36 gross-operated wells in the Delaware Basin. In Egypt, APA averaged 9 rigs and drilled and completed 16 gross-operated wells with adjusted production from Egypt averaging 69 MBoe/d vs. our JPMe of 70 MBoe/d. In the North Sea, APA averaged 3 rigs and produced 63 MBoe/d (JPMe 63 MBoe/d), which was 0.9% below our expectations, with the start of Storr in late November. The oil mix in the North Sea averaged 62.9%, trailing our 64.7% estimate.</p> <p>Operational details on Maka Central-1. The Maka Central-1 well successfully tested hydrocarbons in multiple stacked targets in two intervals: 1) Upper Cretaceous-aged Campanian interval, containing 50 meters (164 feet) of net hydrocarbon-bearing reservoir with API gravities between 40 and 60 degrees; and 2) Santonian intervals, containing 73 meters (240 feet) of net oil-bearing reservoir with API oil gravities between 35 and 45 degrees. The Maka Central-1 well</p>

Exhibit 12

Impact Date	Event
	<p>also targeted a third interval, the Turonian, but due to significantly overpressured, oil-bearing reservoirs in the lower Santonian, the company concluded its drilling activity at approximately 6,300 meters (20,670 feet).</p> <p>JP Morgan, in a later report, added that “Apache reported positive results as EPS and EBITDA came in better than expected” and “[p]roduction was above expectations and capex declined on the back of strong capital efficiency.” The analyst “like[d] that the company is refocusing capital away from the disappointing Alpine High and towards Suriname”:³⁵⁶</p> <p>Positives Production of 487mboe/d exceed guidance. Excluding Egypt production was 430mboe/d, which was 5mboe/d above the high end of guidance. US production increased by 5% YoY to 299mboe/d. Results were led by record high Permian oil production of 103mboe/d.</p> <p>NGL production increased by 35% YoY to 83.1mboe/d on the back of a 15% YoY increase in international production and a 36% increase in US production.</p> <p>Average realized oil prices increased by 3% YoY to \$60.19/bbl □ We estimate the company generated \$1.0mm of FCF based on operating cash flow of \$778mm, capex of \$613mm and dividends of \$164mm.</p> <p>The company reduced capex by 23% in 2019 and plans a further reduction of 26% vs 2019 levels while projecting flat to low single digit oil growth. A large amount of the company’s 2020 capex reduction will be at Alpine High, where there were no rigs drilling at YE19. Management noted it plans to prioritize capital allocation to Suriname over the next several years vs. short cycle opportunities.</p>

³⁵⁶ JP Morgan, “Apache Corp, 4Q19: Solid Results, Production Up in 2019, Capex Guide Reduced, Debt Reduction Remains A Priority,” February 27, 2020, 9:13 PM.

Exhibit 12

Impact Date	Event
	<p>Liquidity remains ample in our view, with \$247mm of cash on hand, ~\$4.0bn of total revolver capacity, and \$293mm of debt maturing in the next 18 months.</p> <p>Negatives</p> <p>Oil production declined by 5% YoY to 238mbbls/d due to a 2% decline in US production and a 7% decline in international production. Natural gas production declined by 3% YoY to 998mmcf/d as US production declined by 3% YoY and international production declined by 2% YoY.</p> <p>Total International production declined by 5% YoY to 189mboe/d led by a 7% YoY decline in Egypt production to 63mboe/d. North Sea production declined by 1% YoY to 63mvoe/d.</p> <p>Average realized natural gas prices declined by 20% YoY to \$2.05/mcf and average realized natural gas prices declined by 35% YoY to \$15.88/bbl.</p> <p>Bottom Line</p> <p>In our view, Apache reported positive results as EPS and EBITDA came in better than expected. Production was above expectations and capex declined on the back of strong capital efficiency. We like that the company is refocusing capital away from the disappointing Alpine High and towards Suriname but are cautious as APA will have to allocate a good amount of capital to the project before yielding any return. Oil realizations were stronger and NGL and natural gas realizations were weaker. International production continued to decline on the back of weaker results in Egypt. Free cash flow generation turned positive during the quarter on the back of lower capex as the company continues to be FCF positive at mid-40s WTI and remains focused on further debt reduction to strengthen the balance sheet. We remain Neutral at current wide levels, as spreads appear to properly reflect the risks in executing management's plans. Risks to our rating include significantly higher or lower commodity prices, execution risk, and potential M&A.</p>

Exhibit 12

Impact Date	Event
	<p>Morningstar wrote that the Company’s production was “above the upper end of management’s guidance” and the “financial results were strong as well, with adjusted EBITDA and adjusted earnings per share coming in” above consensus. The analyst was “very pleased with Apache’s 2020 capital plan”.³⁵⁷</p> <p>Apache delivered production of 487 thousand barrels of oil equivalent per day, or mboe/d, in the fourth quarter, which was 8% higher sequentially and 1% higher year over year. Adjusted production, which excludes Egyptian noncontrolling interest and tax barrels, clocked in at 431 mboe/d, above the upper end of management’s guidance. The firm’s financial results were strong as well, with adjusted EBITDA and adjusted earnings per share coming in at \$1,093 million and \$0.08 respectively (CapIQ consensus estimates were \$1,003 million and negative \$0.05).</p> <p>Apache announced a cut in their 2020 capital budget and plans to invest \$1.6-\$1.9 billion, around 25% lower than 2019 levels, while projecting flat to low-single-digit oil growth. The firm plans to significantly reduce investment in the Alpine High play in the southern portion of the Delaware basin. These wells are characterized by very strong initial production rates but with a much higher gas and natural gas liquids content than we’d expect from a typical oil-focused well in the Permian. The economics of this play have deteriorated as natural gas differentials have weakened considerably, and as such, we are very pleased with Apache’s 2020 capital plan.</p> <p>We plan to incorporate these operating and financial results in our model shortly, but after this first look our fair value estimate and no-moat rating remain unchanged.</p> <p>Piper Jaffray wrote that Apache “delivered robust 4Q operational results with a notable CFO beat ... on notably lower cash opex.” The analyst remarked that “[m]ost importantly to us was the clear messaging delivered by APA’s notably low FY20 spend profile (13%/25% below the SE/Street), which suggests Suriname is already having an</p>

³⁵⁷ Morningstar, “Apache Corp, Apache Tops Production Guidance, Cuts Back On Gassier Alpine High Play in 2020,” February 27, 2020.

Exhibit 12

Impact Date	Event
	<p>impact on the go-forward capital allocation framework in a good way.” The analyst “s[aw] expectations for FY20 oil/total volumes ... as mostly in-line” with its estimate:³⁵⁸</p> <p>APA’s delivered robust 4Q operational results with a notable CFO beat (\$820M vs. SE/ Street ests of \$710/\$730M respectively) on notably lower cash opex. Most importantly to us was the clear messaging delivered by APA’s notably low FY20 spend profile (13%/25% below the SE/Street), which suggests Suriname is already having an impact on the go-forward capital allocation framework in a good way (namely forcing the high-grading of the US onshore development program toward a longer-term serving role devoid of returns-challenged plays like the Alpine High). Positives: 1) 4Q Permian Oil Beat 2) 4Q Cash Opex 3) FY20 Budget 4) FY20 int’l oil vol Negatives: 1) Alpine High Impairment 2) 1Q20 SG&A guide.</p> <p>FY20 Capex Outlook Drastically Cut: Strong on Messaging: APA’s targeted FY20 capital budget of ~\$1.6B-\$1.9B, is 13% below our Street-low \$1.95B forecast at the mid-point and 25% below consensus on average. But while, in the past, steeper-than-expected activity reductions were almost always seen as desperate reactions to an unexpected drop in oil prices, we view this cut as primarily ‘forward-looking’ – in a good way. We see the downsized development program in the US onshore (no more Alpine High, targeting ‘only’ flat Permian oil through FY20, etc.) as ideally accommodating for a potentially larger allocation of capital towards its offshore Suriname assets over the coming years. In the words of Bill Belichick: “We’re On to Suriname”.</p> <p>FY20 Volumes In-line. We see expectations for FY20 oil/total volumes of 199/412.5 Mboe/d (net basis) as mostly in-line with SE (196/412.5) with slightly higher than expected int’l oil volumes. Permian oil volumes are expected to come in slightly in FY20 vs. 4Q19 (97-101 Mb/d vs. 103 Mb/d), we expect volumes to remain mostly flat through YE20. Look for management to speak to the trajectory through YE20 and the implications to production momentum into FY21 from a relatively low investment profile this year.</p>

³⁵⁸ Simmons Energy, A Division of Piper Jaffray, “Apache Corporation, Q4’19 Quick Look: Bye, Bye, Alpine High...We’re On to Suriname,” February 27, 2020, 4:31 AM.

Exhibit 12

Impact Date	Event
	<p>FY20 Op Costs a Mixed Bag: 1) While 1Q LOE cost guidance of \$8.25/boe exceeds SE ests of \$7.63/boe, we're not particularly concerned as operational execution has continued to outperform (\$7.65/boe in LOEs in 4Q19 vs. guide of \$8/boe) 2) Look for management to speak to the FY20 outlook for SG&A and how it is expected to trend through the year. On an annualized basis the 1Q guide implies SG&A of ~\$480M, which would be an increase Y/Y despite the ongoing cost initiatives.</p> <p>Suriname Updates: 1) Appraisal plan on Maka Central-1 discovery being worked with partner Total which will be submitted to Staatsolie in the coming months 2) Sapakara West -1 well commenced drilling in January (12 miles SE of the Maka discovery). Look for any preliminary observations from management as APA has already drilled through the shallower Campanian interval (toward the deeper Santonian objective. 3) As expected, another two exploration wells on Block 58 are planned for this year.</p> <p>RBC wrote that the Company had a “[s]trong 4Q19 earnings beat due to better Permian production and cost control” as adjusted EPS and CFPS were above the analyst’s estimate and consensus and production was higher than guidance. The analyst opined that Apache’s “2020 E&P capital spending outlook should be viewed favorably” and 2020 adjusted oil production guidance was “in line with our expectations”.³⁵⁹</p> <p>Our view: The 2020 E&P capital spending outlook should be viewed favorably with in line oil production growth. Management is focused on maintaining the balance sheet and could reduce activity if oil prices deteriorate from current levels. Likewise, at higher oil price the company will prioritize cash for debt reduction and does not anticipate increasing capital spend above \$1.9 billion. No Suriname update but so far second well is “encouraging”.</p> <p>Key Focus Points/Highlights Strong 4Q19 earnings beat due to better Permian production and cost control.</p>

³⁵⁹ RBC Capital Markets, “APA - 4Q19 Earnings Beat; 2020 E&P Spending Reduced Considerably,” February 26, 2020, 6:57 PM.

Exhibit 12

Impact Date	Event
	<p>2020 upstream E&P capital spending guide of \$1.6-1.9 billion is down 26% YoY at the midpoint and below the preliminary guide of a 10-20% YoY reduction. This compares to our \$2.1 billion estimate.</p> <p>2020 adjusted oil production is projected flat to slightly higher, in line with our expectations.</p> <p>No update on second well that is still drilling in Suriname but management indicated it was encouraged so far, which was a similar tone to the successful Maka-1 well.</p> <p>Earnings Summary 4Q19 recurring EPS/CFPS of \$0.08/\$2.18 compares to our (\$0.02)/\$2.02 and the Consensus (\$0.05)/\$2.00 estimates. Strong production, lower LOE, and G&A drove the beat.</p> <p>4Q19 production adjusted for Egypt tax barrels and non-controlling interest of 430 Mboe/d (201 Mb/d oil) was above our 423 Mboe/d (203 Mb/d oil) model and the company's 418-425 Mboe/d guidance. US production of 299 Mboe/d (108 Mb/d oil) was above our 286 Mboe/d (103 Mb/d oil) model and the company's 286-290 Mboe/d guidance.</p> <p>Upstream E&P capital spending of \$590 million was above our \$575 million forecast but below the \$605 million Consensus expectations.</p> <p>Scotia wrote that “APA’s 4Q19 results will have a slightly positive impact on near-term share price performance given a strong quarter and 2020 guidance coming in a bit more capital efficient than expected, offset by a large write down of Alpine High.” The analyst noted that the Company’s CFPS topped its estimate and consensus as “the beat was driven by lower-than-expected unit costs, NGL/gas volume beats, and a smaller-than-expected cash tax burden”:³⁶⁰</p> <p>OUR TAKE: Slightly Positive. We think APA’s 4Q19 results will have a slightly positive impact on near-term share price performance given a strong quarter and 2020 guidance coming</p>

³⁶⁰ Scotiabank, “Apache Corporation, First Glance of 4Q19 Results,” February 26, 2020, 8:51 PM.

Exhibit 12

Impact Date	Event
	<p>in a bit more capital efficient than expected, offset by a large write down of Alpine High. The company reported solid operational results, with lower-than-expected unit costs driving a CFPS beat and capex coming in slightly below consensus. Initial 2020 guidance looks solid, implying essentially in-line oil volumes with a budget slightly below consensus.</p> <p>Incremental Suriname color is de minimis and basically reiterates everything that their partner TOT said in their 2/6/20 earnings presentation, though management did say they are “encouraged” by the second exploration well thus far. We think near-term trading will be driven by any additional color on tomorrow’s conference call, which we expect to be prominent in Q&A. On the negative side, APA booked a >\$3.2B impairment charge largely due to Alpine High. We think the magnitude of the write down may come as a surprise given that the play was unveiled less than four years ago.</p> <p>KEY POINTS Dial-In: Thursday, Feb 27, at 11 AM ET, (888) 830-1024; Passcode: 7162078.</p> <p>Positive Surprises Solid 4Q19 beat. Apache reported CFPS (ex. WC) of \$2.18 vs. our estimate of \$2.06 and consensus of \$1.92. Versus our estimates, the beat was driven by lower-than- expected unit costs, NGL/gas volume beats, and a smaller-than-expected cash tax burden. Capex of \$613M came in ~1% below consensus of \$622M.</p> <p>Permian oil beat. Oil volumes in the region came in at 103 mbbbl/d vs. guidance of 100 mbbbl/d. This marks strong momentum headed into 2020.</p> <p>Solid initial 2020 outlook. Apache expects to deliver flat to low single-digit oil growth (for adjusted production) this year with upstream capital of \$1.6-\$1.9B. Assuming \$300M of additional capital for minority interest, ALTM, etc, would imply consolidated spending of \$2.05B versus consensus of \$2.12B while current oil consensus of 238 mbbbl/d implies a 0.5-1.0% decline in volumes. Thus, it appears the initial outlook is slightly more capital efficient than expected.</p>

Exhibit 12

Impact Date	Event
	<p>Scotia, in a later report, added that the Company’s “quarter and preliminary 2020 guidance were solid, which compares favorably to many peers who had disappointing releases, and, more importantly, management’s body language on the conference call regarding the second Suriname exploration well was positive”:³⁶¹</p> <p>OUR TAKE: Positive. We think APA’s 4Q19 results will have a positive impact on near-term share price performance. The quarter and preliminary 2020 guidance were solid, which compares favorably to many peers who had disappointing releases, and, more importantly, management’s body language on the conference call regarding the second Suriname exploration well was positive. While we strongly believe that a second discovery is already priced into the shares, the likelihood of a second discovery nevertheless presents solid near-term catalyst potential.</p> <p>Remain on sidelines. Between the >\$3B of Suriname value we estimate is embedded in APA’s share price and the company being the best performing Large Cap energy stock this year, we expect relative performance to be more muted in the coming months (though a short-term pop in the shares is likely if/when successful discoveries at Sapakara West-1 and prospects 3/4 are announced). For offshore megaproject and exploration exposure, we continue to recommend HES over APA.</p> <p>Maintain SP rating; \$37 PT. We will wait until reporting season comes to a close before we revisit our commodity price and target valuation outlook.</p> <p>Highly encouraging Suriname body language. In response to the fluid test that will be conducted at Sapakara West-1, management essentially confirmed that such tests are typically only undertaken when hydrocarbon presence is likely. It appears highly likely that the well encountered hydrocarbons as the shallower Campanian interval was drilled through en route to the deeper Santonian zone.</p> <p>Positive Surprises</p>

³⁶¹ Scotiabank, “Apache Corporation, Highly Encouraging Suriname Body Language,” February 28, 2020, 4:40 AM.

Exhibit 12

Impact Date	Event
	<p>Encouraging Suriname commentary. Solid 4Q19 beat. Permian oil beat. Solid 2020 initial outlook. Higher oil volumes and lower capex versus consensus.</p> <p>Negative Surprises Large Alpine High write down of >\$3B.</p> <p>Stephens wrote that the Company’s production beat its estimate and adjusted EBITDAX also topped its estimate and consensus “driven by lower operating costs (LOE, GP&T, G&A) and higher volumes.” The analyst “view[ed] the [Company’s] lower-than-expected capex + modestly higher volume outlook positively”.³⁶²</p> <p>APA announced 4Q19 results and provided 1Q20/'20 guide. Adj. EBITDAX of ~\$1.093 bil. was ~9%/~10% above our/consensus ~ \$1.006 bil./~\$991 mil. estimates; the beat driven by lower operating costs (LOE, GP&T, G&A) and higher volumes. Production of ~487.2 Mboepd was ~1% above our ~480.6 Mboepd estimate; oil production of ~237.8 Mbopd was ~2% above our estimate. Upstream capex of ~\$590 mil. was ~6% below our ~\$628.9 mil. estimate. Company guided 1Q20 adj. volumes to 435 Mboepd (vs. our current ~418 Mboepd estimate). Preliminarily, our 1Q20 adj. production estimate is biased ~4% higher. '20 upstream capex was guided to \$1.6 bil. - \$1.9 bil. Preliminarily, our ~\$1.95 bil. estimate is biased ~\$150 mil. lower. '20 adj. production was guided to 403-422 Mboepd (vs. our current ~403.1 Mboepd estimate). Preliminarily, our '20 adj. production estimate is biased ~3% higher. We view the lower-than-expected capex + modestly higher volume outlook positively. Reiterate OW rating.</p> <p>KEY POINTS: Incremental Detail. 4Q19 Production Detail: U.S. production was ~298.6 Mboepd (~108.4 Mbopd) vs. our ~283.5 Mboepd (~110.6 Mbopd) estimate.</p>

³⁶² Stephens, “Apache Corporation, APA Initial Look: EBITDAX Beat, Healthy 1Q20 & '20 Guide,” February 27, 2020.

Exhibit 12

Impact Date	Event
	<p>Egypt (net) production was ~69.1 Mboepd vs. our ~72.2 Mboepd estimate. North Sea production was ~62.8 Mboepd (~50.2 Mbopd) vs. our ~61.2 Mboepd (~45.3 Mbopd) estimate.</p> <p>Company launched comprehensive corporate redesign to further align the organization, work processes and cost structure with longterm planned activity levels, targeting a minimum annual savings of \$150 million.</p> <p>1Q20 Guide. Production: Adjusted Production: 435 Mboepd (United States: 295 Mboepd; International Adjusted: 140 Mboepd) Preliminarily, our 1Q20 US production estimate of ~282.4 Mboepd is biased ~4% higher. Preliminarily, our 1Q20 adj. international production estimate of ~135.7 Mboepd is biased ~3% higher. Permian Oil: 100 Mbopd Preliminarily, our 1Q20 Permian oil estimate of ~101.2 Mbopd is biased ~1% lower. Alpine High Production: 90-94 Mboepd Preliminarily, our 1Q20 Alpine High production estimate of ~86.6 Mboepd is biased ~7% higher.</p> <p>Upstream Capex: Below \$490 mil.</p> <p>SunTrust wrote that the Company “reported better than STRH/street estimated 4Q19 earnings driven by better than STRH/street forecasted oil/NGL price realizations and in-line production.” The analyst noted that Apache’s “1Q20 guidance was in-line with STRH estimates at a meaningfully lower capex spend” and “[i]mportantly, the company said they were encouraged by what they have seen so far with the highly anticipated second Suriname well.”</p>

Exhibit 12

Impact Date	Event
	<p>SunTrust “believe[d] APA shares should slightly outperform tomorrow on the quarterly beat, Suriname expectations, and solid FCF”:³⁶³</p> <p>Apache reported better than STRH/street estimated 4Q19 earnings driven by better than STRH/street forecasted oil/NGL price realizations and in-line production. The company’s plans center on long-term returns/FCF as judged by the emphasis on exploration and appraisal at Suriname, shifting capital out of Alpine High, and maintaining essential flat oil production at a 26% reduction in upstream capital spend to help drive free cash flow to pay down debt. 1Q20 guidance was in-line with STRH estimates at a meaningfully lower capex spend. Importantly, the company said they were encouraged by what they have seen so far with the highly anticipated second Suriname well (Sapakara West-1). We believe APA shares should slightly outperform tomorrow on the quarterly beat, Suriname expectations, and solid FCF.</p> <p>With the announced success of the company’s first Suriname exploration well, we believe Apache is looking to redefine the narrative of the company, while strategically focusing on its more conventional assets with solid baseline cash flow. We believe the company’s decision to move to zero rigs in Alpine High is the right decision. While 2020 oil growth is perhaps less than what some investors might want to see, we believe free cash flow generation could be meaningfully higher/more visible without the burden of Alpine High upstream & midstream capital. While we await results from the company’s second Suriname exploration well, with the company currently working on its appraisal program along with its JV partner (who will fund 87.5% of appraisal/ development wells), we believe Apache is moving swiftly in the region and we see potential for several Suriname catalysts throughout the year. We continue to favor Apache for its conventional exposure and exploration upside, and we believe the company is taking the right steps to realize the advantages.</p>

³⁶³ SunTrust Robinson Humphrey, “Apache Corporation, 4Q19 Beat; Suriname Focus & Waving Goodbye to Alpine High,” February 26, 2020.

Exhibit 12

Impact Date	Event
	<p>SunTrust, in a later report, added that Apache “has smartly moved on from Alpine High with renewed focus in Suriname, Egypt, North Sea and the Permian along with potential exploration projects”:³⁶⁴</p> <p>Apache shares have bucked the market disaster trend this week given investors’ conventional production growth preference along with steady US baseline business. The company has smartly moved on from Alpine High with renewed focus in Suriname, Egypt, North Sea and the Permian along with potential exploration projects. The plan is to focus on modest 2020 growth in order to ensure FCF though we forecast both to notably improve once Suriname starts coming online. The next catalyst is likely to be the results from the second Suriname well in a few weeks.</p> <p>Reiterate \$38 Price Target Apache reported better than STRH/street estimated 4Q19 earnings driven by better than STRH/street forecasted oil/NGL price realizations and in-line production. The company’s plans center on long-term returns/FCF as judged by the emphasis on exploration and appraisal at Suriname, shifting capital out of Alpine High, and maintaining essential flat oil production at a 26% reduction in upstream capital spend to help drive free cash flow to pay down debt. 1Q20 guidance was in-line with STRH estimates at a meaningfully lower capex spend. Importantly, the company said they were encouraged by what they have seen so far with the highly anticipated second Suriname well (Sapakara West-1). We continue to like Apache for its conventional oil asset exposure and exploration upside. Adjusting our estimates to reflect 2019 actuals and our updated 2021 forecasts, we reiterate our \$38 price target derived from a forward EV/STRHe 2021 EBITDA multiple of 5.8x (6.1x 2020 EV/EBITDA prior and peer average 4.4x) applied to our 2021E EBITDA of \$4,068MM (\$4,120MM prior and consensus \$3,907MM).</p> <p>Using Portfolio to its Advantage As investors continue to raise concerns regarding inventory, well productivity, and overall acreage quality for many of the U.S. unconventional names, Apache has maintained a diversified portfolio through the years including a mix of unconventional short cycle assets and</p>

³⁶⁴ SunTrust Robinson Humphrey, “Apache Corporation, Longer Term Conventional Focus Resonating with Investors,” February 27, 2020.

Exhibit 12

Impact Date	Event
	<p>conventional onshore and offshore development and exploration plays. While Alpine High demonstrated negative results for Apache due to low natural gas/NGL prices and underperformance from density tests, we believe the company's decision to drop to no activity in the play is the right one to make in order to better focus on the opportunities at hand. The company appears highly motivated to move quickly on its Suriname asset with results from the second well upcoming likely in the next month or so, and appraisal plans already in the works that their partner will largely fund. Further we suggest the possibility for continued catalysts out of the region throughout the year. We forecast Apache to generate nearly \$500MM in free cash flow this year assisted by a substantial reduction in infrastructure spend and lower overall activity levels (largely in Alpine) that should help the company reduce its overall debt. We believe that the company is doing a notable job re-writing the story and positioning to make the most of its diversified asset base.</p> <p>Susquehanna wrote that the Company's total production was "a 2% beat" while adjusted EPS topped the analyst's estimate and consensus "driven largely by better oil price realizations and lower cash taxes." The analyst commented that "the highlight of the call was 'encouraging' initial indications from the company's second exploration test offshore Suriname." Susquehanna added that Apache's 2020 capex and oil guidance "were lower vs. our prior estimate." The analyst lowered its price target for the Company to \$35 from \$38 "on lower Alpine High activity".³⁶⁵</p> <p>4Q results came in largely inline, but the highlight of the call was 'encouraging' initial indications from the company's second exploration test offshore Suriname. A follow-up discovery could substantially de-risk additional prospects on the block in our view. The initial Suriname discovery (Maka Central announced in January) has already changed the narrative for the stock to Suriname upside from one that was focused on Permian inventory quality/depth (note APA is discontinuing Alpine High activities due to poor well results and low gas and NGL prices). Suriname activity/results should be the key catalyst for the stock for the foreseeable future while the other assets shift towards maintenance mode to cover APA's dividend commitments. We continue to like APA's optionality over the next few years as Suriname</p>

³⁶⁵ Susquehanna, "Apache Corp.: 4Q Postview: All About Suriname," February 28, 2020.

Exhibit 12

Impact Date	Event
	<p>becomes a bigger focus within the portfolio. We maintain our Positive Rating but lower our target to \$35 (down from \$38 on lower Alpine High activity).</p> <p>HIGHLIGHTS In-line operational quarter. APA reported 4Q adjusted EPS of \$0.08, better than SFG/ consensus estimates of -\$0.07. The EPS beat was driven largely by better oil price realizations and lower cash taxes. APA reported slightly better oil volumes (~0.5%) along with a 2% beat on total production. For 2020, the capital budget of ~\$1.75B is accompanied by flat oil growth exit to exit, both of which were lower vs. our prior estimate. The budget also includes \$200MM of Suriname capital.</p> <p>Catalysts Commodity price volatility, Suriname exploration success, improving well productivity in Permian Basin</p> <p>Downside or Upside risk Our downside target is \$18 (down from \$21), which is based on ~8.0x our 2020E DACF estimate at a \$45 WTI/\$2.25 HH deck.</p> <p>UBS wrote that the Company had a “[s]olid quarter” with total production and CFPS both beating the analyst’s expectations and consensus as “[t]he driver relative to UBS expectations was the combination of lower LOE and G&A, and marginally higher realizations”:³⁶⁶</p> <p>What Happened? 4Q Beat; Call Commentary on Suriname Likely More Imp We expect a neutral-to-positive reaction as APA topped expectations in the quarter for CFPS by 10% / 14% relative to UBSe / Consensus. The driver relative to UBS expectations was the combination of lower LOE and G&A, and marginally higher realizations. Capex and oil production were largely in-line with UBSe. With that said, the market remains focused on APA / TOT updates in Suriname; both on additional details / depth / delineation at Maka-1, and for an</p>

³⁶⁶ UBS, “Apache Corporation, 4Q Tops; Focus Remains on Suriname,” February 26, 2020.

Exhibit 12

Impact Date	Event
	<p>update at Sapakara West that APA began drilling in Jan-20. The well is expected to be 60-90 days to TD, and management commented that they're "encouraged by what [has been] seen so far". Other key takeaways: (1) 2020 Capex expected to be lowered by 26% y/y vs previous estimate of capex down 10-20% y./y. APA noted it is lowering spend in Alpine High given challenging NG and NGL pricing (had to be expected) and we note if Waha stays weak production could be curtailed. (2) In lower oil price environment APA is prepared to further lower activity with priority to lower debt (~\$300mn due 2021). (3) APA noted it is linking short-term incentive compensation with ESG performance and earmarking capital towards sustainability projects. Solid quarter, but focus firmly on Suriname with any incremental commentary likely more important than tonight's release.</p> <p>4Q19 Results (1) CFPS (beat): \$2.18 vs UBSe / Consensus of \$1.99 / \$1.92, driven by lower LOE (- 21% vs UBSe), G&A (-30% vs UBSe) and marginally higher realizations, (2) Total production (slight beat): 487mboepd vs UBSe / Consensus of 482 / 477 mboepd, driven by NG (+10% vs UBSe). Adj. Production (excl. Egypt tax bbls) was 430mboepd vs. UBSe 421mboepd. (3) Realized Oil Pricing, incl. hedges (beat): \$58/boe vs. UBSe \$57.16/boe. (4) Upstream Capex (in-line): \$590mn was in-line with UBSe of \$585mn but below Consensus of \$615mn.</p> <p>Operational Update / Guidance (1) Oil Production – FY20 oil production guided flat to low single digit growth on adj basis. (2) '20 Capex – Guide of \$1.75bn at the midpoint, down 26% y/y (previously disclosed 10-20% lower y/y at strip) vs. UBSe / Consensus of \$2/\$2.1bn.</p> <p>Conference Call Tomorrow at 11:00am ET – Dial In: 888-830-1024, Pin: 7162078 Call Focus: (1) Update on Sapakara West-1 exploration well, (2) Update on appraisal of Maka-1 discovery, (3) Details on ESG initiatives, (4) Egypt and potential to add more resource (i.e. RDS sale?).</p> <p>Wolfe wrote that "APA reported a 4Q CFPS beat" and adjusted production exceeded guidance "driven by better than expected Permian volumes." However, the analyst commented that Apache's "update is really about two key</p>

Exhibit 12

Impact Date	Event
	<p>items: 1) the fall of Alpine High and 2) ‘encouraging’ results from the second Suriname prospect,” which “will likely be the bigger driver”:³⁶⁷</p> <p>No Rigs At Alpine High? No Worries. APA reported a 4Q CFPS beat, but this update is really about two key items: 1) the fall of Alpine High and 2) “encouraging” results from the second Suriname prospect and given the state of U.S. gas and NGLs, the latter update will likely be the bigger driver. We remain Peer Perform as there’s still plenty of uncertainty on Block 58’s potential, but exploration catalysts could hold the stock up better than peers.</p> <p>Results. APA reported a 4Q19 CFPS of \$2.02, exceeding WR’s \$1.85 and Street’s \$1.95. 4Q19 adjusted production of 430mboepd exceeded the 418- 425mboepd guidance driven by better than expected Permian volumes, with oil volumes from the play 3% above our forecast. 4Q19 upstream capex of \$590mm was slightly above our \$580mm forecast and a \$2.7bn impairment charge was taken during 4Q, largely on APA’s upstream Alpine High assets.</p> <p>Surimania. APA’s second well on Block 58 offshore Suriname, Sapakara West-1 continues to drill, and mgmt. noted that they are “encouraged by what they’ve seen so far,” with more information to come after the well reaches total depth. APA has already drilled through the shallower Campanian interval and is drilling toward the deeper Santonian objectives. This commentary may be all we get but we’re looking for more color on the call related to well timing and any additional information regarding size potential of the Maka discovery.</p> <p>Alpine High Update. If it wasn’t for Suriname, this update would be about Alpine High as APA announced they are no longer planning activity in the play. Activity was already on the way down, but this was a big shift change and we’re looking for more details as to what this means beyond the writedown and lower volumes as APA has 1Bcfpd of capacity on Gulf Coast Express and Permian Highway, along with commitments to Altus. APA didn’t provide specific guidance for Alpine High volumes, but Altus did, with expectations of volume throughput declining from 634mcfepd in 4Q to 500mcfepd on average in 2020, with 15-20% downside if WAHA pricing</p>

³⁶⁷ Wolfe, “Apache Corp., Suriname To The Rescue,” February 26, 2020.

Exhibit 12

Impact Date	Event
	<p>stays weak. Separately, we believe this is yet another positive signal for NYMEX natural gas pricing as APA was a big driver of volume growth over the past two years.</p> <p>2020 Spending Falling Further. After giving a rough outline for 2020 alongside 3Q earnings, APA provided detailed guidance and now forecasts \$1.6-\$1.9bn in capex, down 26% Y/Y, and below the \$1.9-\$2.1bn budget previously signaled. APA continues basing its budget on \$50/Bbl WTI, and still expects to generate positive FCF post-dividend, with excess FCF to be tapped for debt reduction. Given the drop in spending, oil growth is now forecast at flat to up single digits Y/Y, with Permian oil to be down 4% vs. 4Q19.</p> <p>News articles attributed the increase in the Company's stock price after-hours on February 26, 2020 and on February 27, 2020 to its announcement.³⁶⁸</p> <p>Following the Company's disclosures on February 26 and 27, 2020, according to Bloomberg, the average of analysts' price targets for Apache stock increased to \$30.82 from \$30.80, or 0.06%. All 30 analysts who published investment ratings for the Company both before and after the earnings announcement maintained their ratings. (See Exhibit 5C.)</p> <p>Remark: Given that: (i) "Apache reported positive results as EPS and EBITDA came in better than expected" and "[p]roduction was above expectations";³⁶⁹ (ii) analysts were "very pleased with Apache's 2020 capital plan";³⁷⁰ and</p>

³⁶⁸ See, e.g., *Bloomberg First Word*, "Apache 4Q Adjusted EPS Beats Est.; Shares Rise 2.2%," February 26, 2020, 5:27 PM; *Reuters*, "Apache gains on surprise profit, lower Alpine High spending plans," February 27, 2020, 2:08 PM; *Seeking Alpha*, "Apache tops oil and gas names after cutting its losses on Alpine High," February 27, 2020, 3:59 PM.

³⁶⁹ JP Morgan, "Apache Corp, 4Q19: Solid Results, Production Up in 2019, Capex Guide Reduced, Debt Reduction Remains A Priority," February 27, 2020, 9:13 PM. See also, e.g., Evercore ISI, "Apache, US Onshore challenges persist, Suriname discovery helps offset," February 27, 2020, 9:13 AM; Morningstar, "Apache Corp, Apache Tops Production Guidance, Cuts Back On Gassier Alpine High Play in 2020," February 27, 2020; Scotiabank, "Apache Corporation, First Glance of 4Q19 Results," February 26, 2020, 8:51 PM.

³⁷⁰ Morningstar, "Apache Corp, Apache Tops Production Guidance, Cuts Back On Gassier Alpine High Play in 2020," February 27, 2020. See also, e.g., Credit Suisse, "Apache Corporation, 4Q Beat, Better 2020 Guide & Encouraged by 2nd Suriname Well . . . But Fully Valued

Exhibit 12

Impact Date	Event
	(iii) “[i]mportantly, the company said they were encouraged by what they have seen so far with the highly anticipated second Suriname well,” ³⁷¹ the statistically significant Company-specific stock price increase on February 27, 2020 is consistent with that expected in an efficient market.

Stock,” February 27, 2020; Simmons Energy, A Division of Piper Jaffray, “Apache Corporation, Q4’19 Quick Look: Bye, Bye, Alpine High... We’re On to Suriname,” February 27, 2020, 4:31 AM; RBC Capital Markets, “APA - 4Q19 Earnings Beat; 2020 E&P Spending Reduced Considerably,” February 26, 2020, 6:57 PM.

³⁷¹ SunTrust Robinson Humphrey, “Apache Corporation, 4Q19 Beat; Suriname Focus & Waving Goodbye to Alpine High,” February 26, 2020. *See also, e.g.*, BMO Capital Markets, “Apache, 4Q19 EBITDAX/Oil Better; Preliminary Suriname Commentary Positive,” February 26, 2020, 9:24 PM; Scotiabank, “Apache Corporation, Highly Encouraging Suriname Body Language,” February 28, 2020, 4:40 AM; Susquehanna, “Apache Corp.: 4Q Postview: All About Suriname,” February 28, 2020.

Exhibit 13**Apache Corporation****Market Capitalization**

Source: Bloomberg

Date	Apache's Market Capitalization	Median Market Capitalization ¹		Mean Market Capitalization ¹		Apache's Percentile ²		Number of Companies	
		NYSE	NASDAQ	NYSE	NASDAQ	NYSE	NASDAQ	NYSE	NASDAQ
9/7/2016	\$20,917,593,600	\$2,561,441,792	\$313,427,280	\$11,686,241,949	\$3,577,590,647	87.5%	97.5%	1,479	2,420
12/13/2016	\$25,554,564,800	\$2,758,054,400	\$346,015,248	\$12,260,099,809	\$3,704,398,953	89.5%	97.9%	1,473	2,414
12/31/2016	\$24,082,379,000	\$2,731,795,712	\$345,570,832	\$12,063,435,173	\$3,653,041,075	89.1%	97.7%	1,475	2,410
12/31/2017	\$16,083,397,800	\$3,073,010,176	\$385,434,640	\$13,683,624,528	\$4,705,752,225	83.3%	96.2%	1,458	2,410
12/31/2018	\$9,963,020,600	\$3,068,023,552	\$323,094,560	\$14,427,183,832	\$4,406,603,127	75.4%	94.1%	1,156	2,473
12/31/2019	\$9,622,768,600	\$3,649,112,320	\$371,502,176	\$17,266,718,801	\$5,763,162,069	71.0%	92.9%	1,200	2,515
3/12/2020	\$2,927,973,400	\$2,290,606,720	\$254,806,160	\$12,509,772,655	\$4,610,212,587	54.8%	86.9%	1,206	2,520
3/13/2020	\$3,044,941,400	\$2,482,801,408	\$273,930,144	\$13,558,250,962	\$5,041,961,157	53.7%	86.5%	1,207	2,519

Month	Apache's Stock		
	Minimum	Maximum	Average
Sep-16	\$20,917,593,600	\$24,233,751,200	\$22,619,727,617
Oct-16	\$22,568,083,900	\$24,529,701,200	\$23,737,248,995
Nov-16	\$21,065,568,600	\$25,023,363,700	\$22,903,205,252
Dec-16	\$24,082,379,000	\$25,554,564,800	\$25,059,861,229
Jan-17	\$22,697,462,000	\$24,200,002,100	\$23,641,102,720
Feb-17	\$19,967,746,400	\$22,629,164,700	\$21,256,389,221
Mar-17	\$18,760,341,300	\$20,228,082,800	\$19,391,017,043
Apr-17	\$18,379,484,100	\$20,536,182,600	\$19,427,103,447
May-17	\$17,789,253,200	\$19,573,504,700	\$18,865,643,673
Jun-17	\$17,359,358,300	\$18,953,391,000	\$18,048,814,905
Jul-17	\$17,161,530,900	\$19,105,566,000	\$18,374,555,525
Aug-17	\$14,616,442,600	\$18,512,083,600	\$15,930,774,987
Sep-17	\$14,970,711,300	\$17,622,012,900	\$16,176,939,270
Oct-17	\$15,050,707,500	\$17,465,829,900	\$16,187,103,286
Nov-17	\$15,184,373,200	\$17,424,315,900	\$16,098,188,081
Dec-17	\$15,016,758,400	\$16,845,283,100	\$15,791,405,275
Jan-18	\$16,757,666,200	\$18,330,959,300	\$17,617,689,581
Feb-18	\$13,026,443,100	\$17,024,326,100	\$14,553,859,358
Mar-18	\$13,072,216,900	\$14,678,112,200	\$13,757,188,167
Apr-18	\$14,456,872,500	\$16,371,162,600	\$15,319,356,505
May-18	\$14,728,226,400	\$16,921,792,000	\$15,791,108,155
Jun-18	\$14,892,552,800	\$17,865,713,200	\$16,431,542,705

Exhibit 13**Apache Corporation****Market Capitalization**

Source: Bloomberg

Month	Apache's Stock		
	Minimum	Maximum	Average
Jul-18	\$16,948,542,900	\$18,576,520,100	\$17,569,088,624
Aug-18	\$16,056,760,300	\$17,739,698,500	\$16,739,764,330
Sep-18	\$16,316,850,800	\$18,275,178,800	\$17,377,343,395
Oct-18	\$13,838,341,800	\$18,856,557,500	\$16,605,544,496
Nov-18	\$13,158,778,100	\$14,350,545,100	\$13,708,031,929
Dec-18	\$9,640,408,500	\$13,849,547,500	\$11,318,790,437
Jan-19	\$10,289,428,100	\$12,676,757,600	\$11,749,767,486
Feb-19	\$11,336,968,600	\$12,828,575,100	\$12,340,761,642
Mar-19	\$11,994,208,500	\$13,544,633,600	\$12,868,367,229
Apr-19	\$12,371,098,100	\$13,942,389,200	\$13,187,131,986
May-19	\$9,800,249,900	\$11,920,009,800	\$11,128,578,441
Jun-19	\$10,108,504,700	\$11,142,286,400	\$10,729,337,600
Jul-19	\$8,770,227,400	\$10,976,881,300	\$9,606,479,877
Aug-19	\$7,492,862,400	\$9,094,447,700	\$8,201,673,895
Sep-19	\$8,049,281,700	\$10,696,032,900	\$9,269,268,575
Oct-19	\$7,613,169,300	\$9,124,524,400	\$8,317,429,596
Nov-19	\$8,378,088,500	\$9,220,409,800	\$8,827,451,840
Dec-19	\$6,911,547,000	\$9,976,242,700	\$8,419,810,605
Jan-20	\$9,536,280,200	\$12,631,058,900	\$11,387,990,357
Feb-20	\$9,186,566,500	\$10,882,490,100	\$10,328,426,747
Mar-20	\$2,927,973,400	\$9,629,108,400	\$6,229,489,790

Notes:

1) Market capitalization of companies whose primary listing of common stock is on the NYSE or NASDAQ, excluding companies with no data available.

2) This reflects the percentage of companies in the NYSE and NASDAQ with market capitalization smaller than Apache. Companies without market capitalization data have been omitted from this analysis.

Exhibit 14**Apache Corporation****Public Float: Reported Shares Outstanding Minus Total Insider Holdings**

Source: Bloomberg, Refinitiv Eikon

Reporting Date	Reported Shares Outstanding	Total Insider Holdings	Float (Shares)	Float (Dollars)	Float (%)
9/15/2016	379,423,000	1,208,721	378,214,279	\$22,201,178,177	99.7%
9/30/2016	379,423,000	1,237,259	378,185,741	\$24,154,723,278	99.7%
10/14/2016	379,423,000	1,237,259	378,185,741	\$23,360,533,222	99.7%
10/31/2016	379,423,000	1,237,259	378,185,741	\$22,494,487,875	99.7%
11/15/2016	379,429,000	1,237,259	378,191,741	\$23,973,574,462	99.7%
11/30/2016	379,429,000	1,237,259	378,191,741	\$24,941,745,319	99.7%
12/15/2016	379,429,000	1,237,259	378,191,741	\$25,240,516,794	99.7%
12/30/2016	379,429,000	1,249,641	378,179,359	\$24,003,043,916	99.7%
1/13/2017	379,429,000	1,249,641	378,179,359	\$23,742,100,158	99.7%
1/31/2017	379,429,000	1,249,641	378,179,359	\$22,622,689,255	99.7%
2/15/2017	379,429,000	1,249,641	378,179,359	\$21,022,990,567	99.7%
2/28/2017	379,687,000	1,249,641	378,437,359	\$19,902,020,710	99.7%
3/15/2017	379,687,000	1,249,641	378,437,359	\$19,326,795,924	99.7%
3/31/2017	380,370,000	822,860	379,547,140	\$19,504,927,525	99.8%
4/13/2017	380,370,000	822,860	379,547,140	\$19,876,883,722	99.8%
4/28/2017	380,370,000	822,860	379,547,140	\$18,461,172,890	99.8%
5/15/2017	380,437,000	822,860	379,614,140	\$19,348,932,716	99.8%
5/31/2017	380,437,000	822,860	379,614,140	\$17,750,757,186	99.8%
6/15/2017	380,437,000	822,860	379,614,140	\$18,145,555,892	99.8%
6/30/2017	380,437,000	690,007	379,746,993	\$18,201,273,374	99.8%
7/14/2017	380,437,000	690,007	379,746,993	\$18,440,513,980	99.8%
7/31/2017	380,437,000	690,007	379,746,993	\$18,789,881,214	99.8%
8/15/2017	380,934,000	690,007	380,243,993	\$15,795,335,469	99.8%
8/31/2017	380,934,000	690,007	380,243,993	\$14,768,676,688	99.8%
9/15/2017	380,934,000	690,007	380,243,993	\$16,167,974,582	99.8%
9/29/2017	380,934,000	631,998	380,302,002	\$17,417,831,692	99.8%
10/13/2017	380,934,000	631,998	380,302,002	\$15,820,563,283	99.8%
10/31/2017	380,934,000	631,998	380,302,002	\$15,733,093,823	99.8%
11/15/2017	380,943,000	631,998	380,311,002	\$15,604,160,412	99.8%
11/30/2017	380,943,000	631,998	380,311,002	\$15,908,409,214	99.8%
12/15/2017	380,943,000	631,998	380,311,002	\$15,010,875,249	99.8%
12/29/2017	380,943,000	619,701	380,323,299	\$16,057,249,684	99.8%
1/12/2018	380,943,000	619,701	380,323,299	\$17,936,046,781	99.8%
1/31/2018	380,943,000	619,701	380,323,299	\$17,065,106,426	99.8%
2/15/2018	380,943,000	619,701	380,323,299	\$14,490,317,692	99.8%
2/28/2018	381,448,000	619,701	380,828,299	\$13,005,286,411	99.8%
3/15/2018	381,448,000	619,701	380,828,299	\$13,458,472,087	99.8%
3/29/2018	381,448,000	884,372	380,563,628	\$14,644,088,405	99.8%
4/13/2018	382,147,000	884,372	381,262,628	\$15,486,887,949	99.8%
4/30/2018	382,147,000	884,372	381,262,628	\$15,612,704,617	99.8%
5/15/2018	382,154,000	884,372	381,269,628	\$16,211,584,583	99.8%
5/31/2018	382,154,000	884,372	381,269,628	\$15,250,785,120	99.8%
6/15/2018	382,154,000	884,372	381,269,628	\$15,864,629,221	99.8%
6/29/2018	382,154,000	925,881	381,228,119	\$17,822,414,563	99.8%
7/13/2018	382,154,000	925,881	381,228,119	\$18,089,274,247	99.8%
7/31/2018	382,154,000	925,881	381,228,119	\$17,536,493,474	99.8%
8/15/2018	382,486,000	925,881	381,560,119	\$16,017,893,796	99.8%
8/31/2018	382,486,000	925,881	381,560,119	\$16,723,780,016	99.8%
9/14/2018	382,486,000	925,881	381,560,119	\$17,345,723,010	99.8%

Exhibit 14**Apache Corporation****Public Float: Reported Shares Outstanding Minus Total Insider Holdings**

Source: Bloomberg, Refinitiv Eikon

Reporting Date	Reported Shares Outstanding	Total Insider Holdings	Float (Shares)	Float (Dollars)	Float (%)
9/28/2018	382,486,000	885,775	381,600,225	\$18,190,882,726	99.8%
10/15/2018	382,486,000	885,775	381,600,225	\$17,007,922,028	99.8%
10/31/2018	382,486,000	885,775	381,600,225	\$14,435,936,512	99.8%
11/15/2018	379,544,000	885,775	378,658,225	\$14,006,567,743	99.8%
11/30/2018	379,544,000	885,775	378,658,225	\$13,302,263,444	99.8%
12/14/2018	379,544,000	885,775	378,658,225	\$11,450,624,724	99.8%
12/31/2018	379,544,000	929,430	378,614,570	\$9,938,632,463	99.8%
1/15/2019	379,544,000	929,430	378,614,570	\$12,021,012,598	99.8%
1/31/2019	379,544,000	929,430	378,614,570	\$12,426,130,187	99.8%
2/15/2019	379,544,000	929,430	378,614,570	\$12,607,865,181	99.8%
2/28/2019	379,544,000	929,430	378,614,570	\$12,562,431,433	99.8%
3/15/2019	375,406,000	929,430	374,476,570	\$12,900,717,837	99.8%
3/29/2019	375,406,000	1,134,894	374,271,106	\$12,972,236,534	99.7%
4/15/2019	375,907,000	1,134,894	374,772,106	\$13,473,057,211	99.7%
4/30/2019	375,907,000	1,134,894	374,772,106	\$12,333,750,008	99.7%
5/15/2019	375,921,000	1,134,894	374,786,106	\$11,682,082,924	99.7%
5/31/2019	375,921,000	1,134,894	374,786,106	\$9,770,673,783	99.7%
6/14/2019	375,921,000	1,134,894	374,786,106	\$10,302,870,054	99.7%
6/28/2019	375,921,000	1,074,617	374,846,383	\$10,859,299,716	99.7%
7/15/2019	375,921,000	1,074,617	374,846,383	\$9,877,202,192	99.7%
7/31/2019	375,921,000	1,074,617	374,846,383	\$9,153,748,673	99.7%
8/15/2019	375,959,000	1,074,617	374,884,383	\$7,471,445,753	99.7%
8/30/2019	375,959,000	1,074,617	374,884,383	\$8,086,256,141	99.7%
9/13/2019	375,959,000	1,074,617	374,884,383	\$9,124,685,882	99.7%
9/30/2019	375,959,000	961,400	374,997,600	\$9,599,938,560	99.7%
10/15/2019	375,959,000	961,400	374,997,600	\$8,317,446,768	99.7%
10/31/2019	376,036,000	961,400	375,074,600	\$8,124,115,836	99.7%
11/15/2019	376,036,000	961,400	375,074,600	\$8,968,033,686	99.7%
11/29/2019	376,036,000	961,400	375,074,600	\$8,356,662,088	99.7%
12/13/2019	376,036,000	961,400	375,074,600	\$8,007,842,710	99.7%
12/31/2019	376,036,000	970,497	375,065,503	\$9,597,926,222	99.7%
1/15/2020	376,036,000	970,497	375,065,503	\$12,579,696,971	99.7%
1/31/2020	376,036,000	970,497	375,065,503	\$10,291,797,402	99.7%
2/14/2020	376,036,000	970,497	375,065,503	\$10,261,792,162	99.7%
2/28/2020	377,316,000	970,497	376,345,503	\$9,378,529,935	99.7%
3/13/2020	377,316,000	970,497	376,345,503	\$3,037,108,209	99.7%
Average	379,325,918	933,161	378,392,756	\$15,162,719,329	99.8%

Exhibit 2

**UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF TEXAS
HOUSTON DIVISION**

IN RE APACHE CORP. SECURITIES LITIGATION

Case No. 4:21-cv-00575

EXPERT REPORT

OF

LUCY P. ALLEN

June 16, 2023

TABLE OF CONTENTS

I.	Scope of Assignment	1
II.	Summary of Findings.....	1
III.	Qualifications and Remuneration	3
	A. Qualifications	3
	B. Remuneration	4
IV.	Materials Considered	4
V.	Background	5
	A. Company background	5
	B. Summary of allegations	7
VI.	Methodology	10
VII.	A Detailed Analysis of the Focus Period Shows No Price Impact and No Link with Any of the Alleged Misrepresentations Made During the Alleged Class Period	19
	A. An analysis of each of the alleged misrepresentations made during the Focus Period shows no evidence of price impact.....	19
	B. An analysis of each of the alleged corrective disclosures during the Focus Period shows no price impact and no link to any of the alleged misrepresentations	24
	1. The April 23, 2019 alleged corrective disclosure regarding the deferral at Alpine High did not result in a statistically significant price decline, was expected by the market given the “extremely” low gas prices, and did not change the market’s expectations about Alpine High’s reserves or the mix of oil and wet gas vs. dry gas	25
	2. The price decline after the October 25, 2019 alleged corrective disclosure regarding the resignation of Apache’s Senior VP of Worldwide Exploration was not related to Alpine High and instead was explicitly attributed to concerns about Apache’s Suriname exploration.....	32
	3. The March 16, 2020 alleged corrective disclosure was in a <i>Seeking Alpha</i> article that nobody mentioned, let alone tied to any price drop, and the article revealed no new information about Apache at all	35
VIII.	A Big Picture Analysis Is Consistent with No Price Impact During the Focus Period – the Market Did Not Change Its View about Alpine High’s Oil and Wet Gas Reserves, Apache’s Stock Moved In-Line with the E&P Industry, and the Downward Changes in Expectations about Alpine High Were Driven By Deteriorating Commodity Prices ...	47
	A. During the Focus Period, the market did not change its view about Alpine High’s oil and wet gas reserves or the mix	47

B. Instead, Apache’s stock moved in-line with the oil and gas exploration and production industry	52
C. Moreover, the downward changes in expectations about Alpine High were driven by deteriorating commodity prices	54

I. SCOPE OF ASSIGNMENT

1. I have been asked by counsel for Defendants to analyze whether there is price impact from the alleged misrepresentations that Plaintiffs claim inflated the stock price of Apache Corporation (“Apache” or the “Company”). In particular, I have been asked to focus my analysis on the time period between February 23, 2018 and March 13, 2020 (the “Focus Period”) and analyze whether there is a link between any of the alleged misrepresentations made during the alleged “Class Period” (the period between September 7, 2016 and March 13, 2020) and Apache’s stock price during the Focus Period. As part of this analysis, I was asked to analyze each of the three alleged corrective disclosures during the Focus Period, i) April 23, 2019, ii) October 25, 2019, and iii) March 16, 2020, and whether there is any link to any of the alleged misrepresentations. For the purpose of this report, I have been asked to assume Plaintiffs’ claim of market efficiency.

II. SUMMARY OF FINDINGS

2. Plaintiffs allege that Apache made misstatements about its Alpine High resource play that allegedly impacted and inflated the Company’s stock price during the alleged Class Period. In general, Plaintiffs allege that Apache “touted Alpine High” as a “transformational discovery” and concealed that “the Alpine High area was ‘too gassy’ to ever be viable – i.e., too heavy on unprofitable ‘dry’ gas and too light on valuable oil and ‘wet’ gas.”¹

3. I find that there is no price impact and no link between any of the alleged misrepresentations made during the alleged Class Period and Apache’s stock price during the Focus Period.

4. A detailed analysis of each of the alleged partial corrective disclosures Plaintiffs claim were made during the Focus Period shows no price impact and no link to any of the alleged misrepresentations made during the alleged Class Period:

- a) April 23, 2019 alleged corrective disclosure: The announcement of a temporary deferral of natural gas production at Alpine High did not result in a statistically

¹ Consolidated Class Action Complaint, filed December 17, 2021, ¶¶1-8.

significant price decline. The deferral, rather than having any link to the alleged misrepresentations made during the alleged Class Period and Alpine High's reserves or the mix of oil and wet gas vs. dry gas, was expected by the market given the then "extremely" low gas prices.

- b) October 25, 2019 alleged corrective disclosure: The price decline following the resignation of Steven Keenan, Apache's Senior Vice President of Worldwide Exploration, was not related to Alpine High, which shows there is no link between this alleged corrective disclosure and any of the alleged misrepresentations. Instead, analysts explicitly attributed the price decline to market concerns about Apache's Suriname exploration. In addition, no new information about Alpine High was revealed on this date.
- c) March 16, 2020 alleged corrective disclosure: The March 16, 2020 alleged corrective disclosure was in a *Seeking Alpha* article that no analyst or news story mentioned, let alone tied to any price drop. In addition, there was no new news about Alpine High (or about Apache) within the *Seeking Alpha* article.

5. I find that the lack of a link between the alleged misrepresentations and Apache's stock price during the Focus Period is further demonstrated by the fact that no new information was disclosed and the market did not change its view about Alpine High's oil and wet gas reserves or the mix during the Focus Period. Analysts' estimates of the quantity of oil and wet gas reserves at Alpine High and the reserve mix were essentially unchanged during the Focus Period and a systematic review of commentary of analyst reports issued during the Focus Period found no analyst discussion regarding any change in their view about the quantity or mix of Alpine High's reserves. Instead, analysts repeatedly characterized Alpine High as a *gas-weighted, NGL-rich* play during the Focus Period.

6. Contrary to Plaintiffs' claim that the alleged corrective disclosures during the Focus Period caused Apache's stock price to decline, Apache's stock price moved in-line with the oil and gas exploration and production industry during the Focus Period. Moreover, during this period, the downward changes in expectations about Alpine High were not driven by Alpine High's alleged lack of oil and wet gas reserves or the mix of oil and wet gas vs. dry gas. Instead, they were driven by the deteriorating outlook for commodity prices, particularly the weakening

Waha Hub natural gas prices and natural gas liquid prices. Further, strong evidence that there is no price impact and no link between the alleged misrepresentations and Apache's stock price during the Focus Period is the fact that when commodity prices recovered *after* the Focus Period ended, Apache resumed its previously curtailed production and drilling at Alpine High. Therefore, movements in Apache's stock price and changes in expectations about Alpine High during the Focus Period were not in relation to any new understanding of the reserves or reserve mix at Alpine High, but were due to changes in commodity prices during the Focus Period.

III. QUALIFICATIONS AND REMUNERATION

A. Qualifications

7. I am a Senior Managing Director of NERA Economic Consulting ("NERA") and a member of NERA's Securities and Finance Practice. NERA provides practical economic advice related to highly complex business and legal issues arising from competition, regulation, public policy, strategy, finance, and litigation. NERA was established in 1961 and now employs approximately 500 people in more than 20 offices worldwide. NERA's Securities and Finance Practice, which performs research in securities and financial markets, dates from the early 1970s and employs a research staff of more than 100 professionals holding degrees in economics, finance, and mathematics. The practice group counts among its clients major securities exchanges, risk managers, principals needing valuation services, and parties in litigation.

8. I have an A.B. from Stanford University, an M.B.A. with a concentration in Finance and Accounting from Yale University, and M.A. and M. Phil. degrees in Economics, also from Yale University. Prior to joining NERA, I was an Economist for both President George H. W. Bush's and President Bill Clinton's Council of Economic Advisers, providing economic analysis on regulation and health care policy issues. In my over 25 years at NERA, I have been engaged as an economic consultant or expert witness in numerous projects involving securities and financial economics. In the course of this work, I have analyzed the effect of information on stock prices of over 100 companies. My resume with recent publications and testifying experience is included as Appendix A.

B. Remuneration

9. NERA is being compensated for time spent by me and my team at standard billing rates and for out-of-pocket expenses at cost. NERA currently bills for my time at \$1,150 per hour. NERA's fees are not in any way contingent upon the outcome of this matter.

IV. MATERIALS CONSIDERED

10. In preparing this report, I considered the following categories of materials (a complete list of materials considered is included as Appendix B):

- a) Consolidated Class Action Complaint, filed December 17, 2021 ("Complaint");
- b) Memorandum and Recommendation on Motion to Dismiss, filed September 15, 2022;
- c) Order Adopting Magistrate Judge's Memorandum and Recommendation, filed November 29, 2022;
- d) Lead Plaintiffs' Motion for Class Certification and Appointment of Class Representatives and Class Counsel and Supporting Memorandum of Law, filed April 7, 2023 ("Plaintiffs' Motion for Class Certification");
- e) Deposition of David Sullivan (former Executive Director at Co-Lead Plaintiff Plymouth County Retirement System), dated May 25, 2023 ("Sullivan Deposition");
- f) Deposition of Jay Smith (Fund Administrator at Co-Lead Plaintiff Trustees of the Teamsters Union No. 142 Pension Fund), dated June 6, 2023;
- g) Expert Report of Zachary Nye, Ph.D., dated April 7, 2023, including exhibits, appendices, and materials considered and turned over ("Nye Report");
- h) Apache's filings with the Securities and Exchange Commission ("SEC") between 2016 and 2023;
- i) Apache's press releases, presentations, and conference call transcripts from 2016 to 2023, from Factiva and FactSet Research Systems, Inc.;

- j) Analyst reports on Apache from Refinitiv Eikon, Dr. Nye's turnover, and the Company;
- k) Analyst reports and SEC filings on other exploration and production ("E&P") companies;
- l) News stories on Apache, other E&P companies, and the oil and gas industry from Factiva, Google, and Bloomberg;
- m) Financial data from Bloomberg, L.P., FactSet Research Systems, Inc., and Federal Reserve Bank of St. Louis ("FRED");
- n) Documents on Lead Plaintiffs' trading;
- o) Legal decisions on class certification; and
- p) Academic literature and textbooks on finance, securities, valuation, and statistics.

V. BACKGROUND

A. Company background

11. Apache is an energy company headquartered in Houston, Texas that explores and produces crude oil, natural gas, and natural gas liquids ("NGLs"). During the Focus Period, Apache had operations in three primary geographic areas: the U.S., Egypt, and the North Sea (offshore the U.K.).²

12. The table below shows Apache's production revenue by product from 2018 to 2020. As shown in the table, approximately 80% of Apache's production revenue was from oil.

² Apache FY18 Form 10-K, filed March 1, 2019, p. 1.

Apache Annual Production Revenue by <u>Product</u>			
Product	2018	2019	2020
Oil	\$5,846M <i>80%</i>	\$5,230M <i>83%</i>	\$3,106M <i>77%</i>
Natural Gas	\$919M <i>13%</i>	\$678M <i>11%</i>	\$598M <i>15%</i>
NGL	\$583M <i>8%</i>	\$407M <i>6%</i>	\$333M <i>8%</i>
Total	\$7,348M	\$6,315M	\$4,037M

Source: Apache FY20 Form 10-K, filed February 26, 2021.

13. The table below shows Apache's production revenue by region from 2018 to 2020. As shown in the table, the shares of Apache's production revenue from the U.S., Egypt, and the North Sea were stable at around 45%, 35%, and 20% respectively.

Apache Annual Production Revenue by <u>Region</u>			
Region	2018	2019	2020
United States	\$3,279M <i>45%</i>	\$2,763M <i>44%</i>	\$1,764M <i>44%</i>
Egypt	\$2,748M <i>37%</i>	\$2,276M <i>36%</i>	\$1,390M <i>34%</i>
North Sea	\$1,321M <i>18%</i>	\$1,276M <i>20%</i>	\$883M <i>22%</i>
Total	\$7,348M	\$6,315M	\$4,037M

Source: Apache FY20 Form 10-K, filed February 26, 2021.

14. During the Focus Period, Apache was engaged, among other activities, in exploration in Suriname and the development of its Alpine High resource play in the Delaware

Basin, primarily in Reeves County, Texas.³ The Delaware Basin is a sub-basin of the Permian region in west Texas and New Mexico, where Apache had many operations throughout the Focus Period.⁴

B. Summary of allegations

15. Plaintiffs allege that Apache made misrepresentations about the Alpine High resource play that impacted and inflated the Company's stock price during the alleged Class Period.⁵ In general, Plaintiffs allege that Apache "touted Alpine High as a 'transformational discovery' and 'world class resource play' with immense production capabilities," and concealed that "the Alpine High area was 'too gassy' to ever be viable – i.e., too heavy on unprofitable 'dry' gas and too light on valuable oil and 'wet' gas."⁶

16. According to the Complaint, Apache made 41 alleged misrepresentations on 34 dates during the alleged Class Period (note two alleged misrepresentations could occur on different dates but have the same market reaction date if one occurs after market hours the previous day and the other during market hours the next day), including 15 alleged misrepresentations on 15 dates during the Focus Period. For the rest of this report, I refer to alleged misrepresentations that have the same reaction date as one alleged misrepresentation. The alleged misrepresentations, which are in most instances short excerpts of lengthy SEC filings, press releases or conference call transcripts, are listed in Appendix C.

17. Plaintiffs claim that "facts that partially corrected" the alleged misrepresentations were disclosed to the market through a series of five "partial" alleged "corrective disclosures"

³ Apache FY18 Form 10-K, filed March 1, 2019, pp. 3-4.

A play is an "area in which hydrocarbon accumulations of prospects of a given type occur." See, "Play," *Schlumberger's Energy Glossary*, accessed at: <https://glossary.slb.com/en/terms/p/play>.

⁴ See, for example, Apache FY18 Form 10-K, filed March 1, 2019, pp. 1, 3.

⁵ Complaint, p. 1 and ¶¶1-8.

⁶ Complaint, ¶¶1, 4.

Dry gas is essentially made up of methane, while wet gas also contains natural gas liquids like ethane and butane. See, for example, "What's the Difference Between Wet and Dry Natural Gas," *StateImpact Pennsylvania*, accessed at: <https://stateimpact.npr.org/pennsylvania/tag/natural-gas-prices/> and "High value of liquids drives U.S. producers to target wet natural gas resources," *U.S. Energy Information Administration*, May 8, 2014.

during the alleged Class Period, including three dates during the Focus Period.⁷ Plaintiffs claim that these alleged corrective disclosures removed alleged inflation in Apache's stock price and caused the stock price to decline.⁸

18. The alleged corrective disclosures are described below:

Alleged corrective disclosures before the Focus Period

- 1) October 9, 2017: On this date, after market close, Apache held a conference call to provide an update on progress at Alpine High. According to Plaintiffs, Apache allegedly revealed that it was “experiencing significant problems extracting oil from the Woodford and Barnett formations within Alpine High,” and that the Alpine High play was “more weighted toward wet gas and dry gas, and that the much more profitable and desirable oil play Defendants had touted was merely ‘emerging.’”⁹
- 2) February 22, 2018: On this date, during market hours, Apache issued a press release and held a conference call discussing the Company's financial results for 4Q17 and FY17. According to Plaintiffs, Apache allegedly revealed “disappointing 2018 production growth guidance, [...] lackluster production outlook and longer-than-expected ramp up” for Alpine High for 2019 and 2020. Plaintiffs claim that Apache “disclosed a disappointing gas/oil mix at Alpine High” of 83% gas, 10% natural gas liquids, and 7% oil.¹⁰

Alleged corrective disclosures during the Focus Period

- 3) April 23, 2019: On this date, before market open, Apache issued a press release titled “Temporary Deferral of Alpine High Natural Gas Production.” According to Plaintiffs, the news that “the Company was scaling back natural gas production efforts,” caused Apache's stock price to drop.¹¹

⁷ Complaint, ¶¶303, 319.

⁸ Complaint, ¶¶318-319.

⁹ Complaint, ¶304.

¹⁰ Complaint, ¶307.

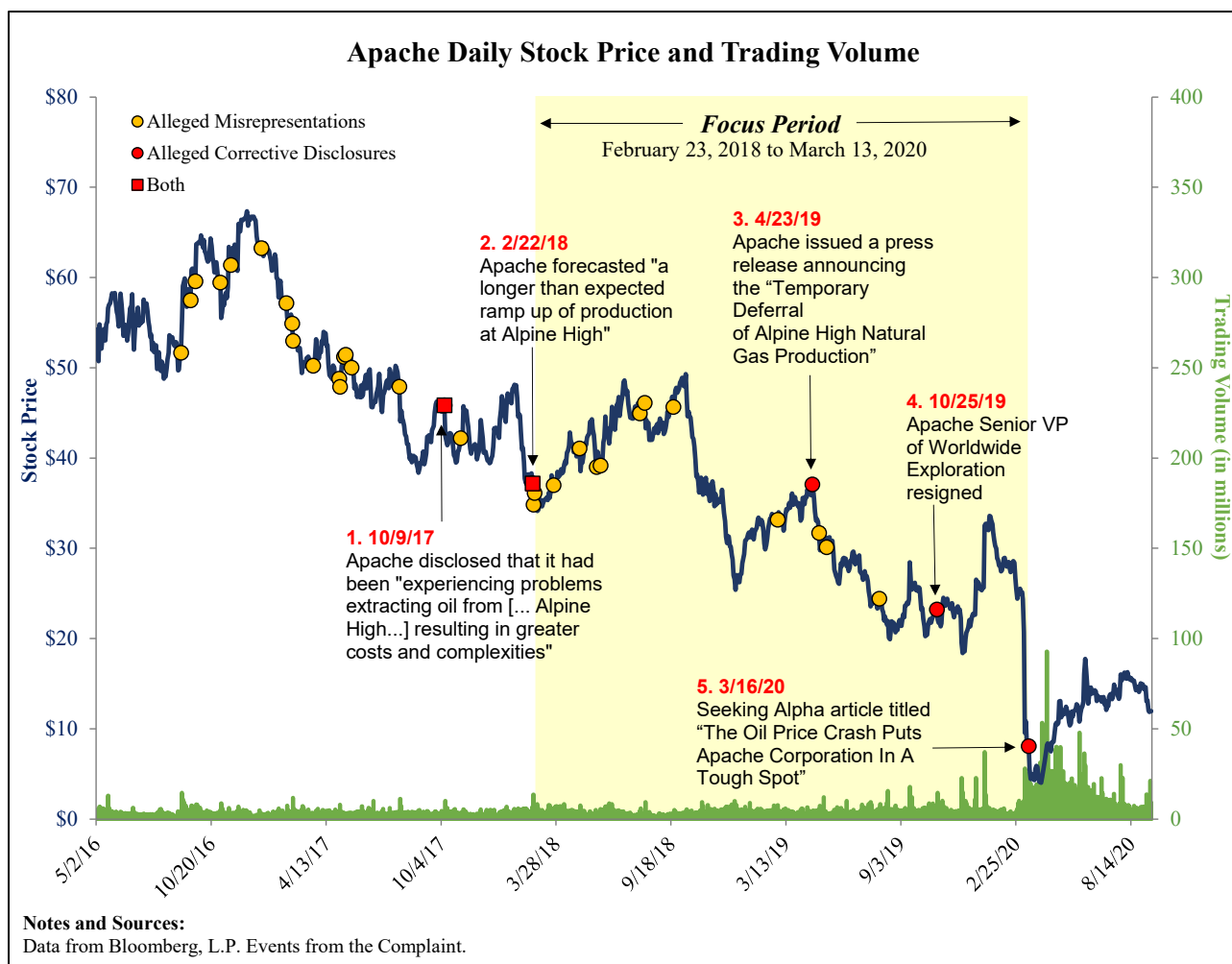
¹¹ Complaint, ¶¶310-311.

- 4) October 25, 2019: On this date, during market hours, “media reports revealed that [Steve] Keenan [Apache Senior Vice President of Worldwide Exploration] had abruptly ‘resigned.’” According to Plaintiffs, analysts and the media “easily connected news of Keenan’s departure to the Alpine High debacle.”¹²
- 5) March 16, 2020: On this date, according to Plaintiffs, a *Seeking Alpha* article was published before market open that disclosed how Alpine High had left Apache “particularly challenged amongst its E&P peers” with high levels of debt.¹³

19. The chart below shows Apache’s stock price and trading volume during the alleged Class Period, along with the alleged misrepresentations and the alleged corrective disclosures.

¹² Complaint, ¶¶313-314.

¹³ Complaint, ¶315. See also, “The Oil Price Crash Puts Apache Corporation In A Tough Spot,” *Seeking Alpha*, March 16, 2020.



VI. METHODOLOGY

20. An analysis of price impact is an analysis of whether the alleged misrepresentations affected the market price when made.¹⁴ In general, the price impact of an alleged misrepresentation can be analyzed in at least two ways: (1) directly by analyzing the market reaction following an alleged misrepresentation, including analyzing the stock price movement and examining market and analyst commentary following the alleged

¹⁴ See, for example, *Halliburton I*, 131 S. Ct. 2179, 2186 (2011). ("'[P]rice impact' – that is, whether the alleged misrepresentations affected the market price in the first place.")

misrepresentations, or (2) indirectly by analyzing the market reaction to a disclosure that is corrective of an alleged misrepresentation.¹⁵

21. To analyze price impact of the alleged misrepresentations and omissions during the Focus Period in this case, I examined publicly available information related to Apache and Plaintiffs' allegations. I reviewed Plaintiffs' claims in the Complaint and the Nye Report, and examined the alleged misrepresentations and the alleged corrective disclosures during the Focus Period (including what information was allegedly false, when the alleged truth was purportedly revealed to the market and what information was alleged to be corrective). I analyzed publicly available information on Apache, including analyst reports, press releases, conference call transcripts, SEC filings, and news stories from Bloomberg and Factiva.¹⁶ I focused on what the market knew about the alleged misrepresentations during the Focus Period, and on how the market reacted in terms of analyst and other market commentary and price reactions to the alleged misrepresentations.

22. Analyst reports are periodic reports issued by professional financial analysts at brokerage firms who perform research and analysis on specific industries and companies. Analysts analyze companies by studying publicly available information, such as SEC filings, as well as participating on conference calls and attending investor conferences where they can ask

¹⁵ See, for example, *Halliburton II*, 134 S. Ct. 2398 (2014).

Note that simply testing whether there were statistically significant price reactions on the dates of the alleged corrective disclosures may not be a reliable analysis of price impact of the alleged misrepresentations for a number of reasons, including the following:

1. The alleged corrective disclosures may not actually be corrective of the alleged misrepresentations. (If the alleged corrective disclosures are not in fact corrective, they cannot help one determine the price impact of the alleged misrepresentations);
2. The alleged corrective disclosure dates may not properly correspond to when the alleged misrepresentations were first corrected in the market. (Since, in an efficient market, only new news should affect a security's price, the reaction to repeated news is not a reliable indicator of what the price impact of the news would be initially. If news that is not new affects the price, then that is an indication that the market is not efficient.)
3. The price reaction on the alleged corrective disclosure dates may be the result of confounding factors or news unrelated to the alleged fraud; and
4. Market conditions may have changed between the time that the alleged misrepresentations were made and the time of the alleged corrective disclosures.

¹⁶ Bloomberg is a commonly used provider of financial data and news. Factiva is an online news reporting service and archive owned by Dow Jones & Company, Inc. that aggregates news content from nearly 33,000 sources from around the world.

questions directly to management. Analysts use this information to model and value companies and industries, using financial techniques such as discounted cash flow models and valuation multiples. Using these valuations, analysts typically issue price targets (*i.e.*, what price they expect the stock of a company to be in a certain time period), provide estimates reflecting their expectations of the company's future financial performance (such as estimates of future revenue, profits and earnings per share ("EPS")), and give recommendations to buy, hold or sell the stock. Analysts typically issue reports after new information about the company is released. These reports play an important role in disseminating information about a stock and can be a valuable source of information on market knowledge and sentiment at the time.¹⁷

23. The review of analyst reports is a standard and generally accepted methodology for determining what information is important to the market in valuing a stock, and thus, for determining whether a piece of information had price impact.¹⁸ This position is echoed in the Nye Report, which states:

Securities analysts research and report to investors on the financial condition and prospects of a covered company. Analysts are conduits to the market for information collected from on-site visits, conference calls accompanying key company announcements, and other contacts with senior management. Analysts can channel new information to the market rapidly through their published reports, online reporting services, and alerts given to clients and other employees of the same investment firm. Analysts thus facilitate the dissemination of new information to investors and any corresponding price reaction in a company's securities.¹⁹

¹⁷ In particular, courts have relied on analyst reports in determining what information is important to the market in valuing a stock and in determining the cause of stock price movements. See, for example, *In Re TECO Energy Inc. Securities Litigation*, 2006 U.S. Dist. LEXIS 18101 (M.D. Fla. March 30, 2006) ("Specifically, the analyst reports on September 3, 2002, September 23, 2002, October 8, 2002, and January 23, 2003 address ratings cuts, opinions, and predictions regarding TECO's stock value but do not reference any misstatements, omissions, or accounting practices by Defendants as the reason for the bleak forecasts or changes in market conditions.") and *Barrie v. Intervoice-Brite, Inc.*, 2006 U.S. Dist. LEXIS 69299 (N.D. Tex. Sept. 25, 2006) ("Barry's review of analyst reports and the public press also shows that those information sources did not link the June 6 disclosure to any prior earnings or revenues that were supposedly overstated."). The First Circuit has also recommended analyzing contemporaneous content for explaining stock price movements, citing a paper that specifically describes performing content analysis of analyst reports and commentary. *Bricklayers & Trowel Trades International Pension Fund v. Credit Suisse Securities (USA) LLC*, 752 F.3d 82, 92 (1st Cir. 2014), citing David Tabak, "Making Assessments About Materiality Less Subjective Through the Use of Content Analysis," 2007.

¹⁸ Courts often look to the number of analyst reports published on a company as an indication of market efficiency. See, for example, *Cammer v. Bloom*, 711 F. Supp. 1264 (D.N.J. 1989).

¹⁹ Nye Report, ¶33.

24. There were over 600 analyst reports issued by 24 analysts covering Apache during the alleged Class Period and over 400 analyst reports issued by 24 analysts covering Apache during the Focus Period.²⁰

25. Plaintiffs and Dr. Nye assert that the market for Apache's stock was efficient during the alleged Class Period, and thus, that Apache's stock price "promptly responded to the disclosure of new, unexpected, value relevant information."²¹ For the purpose of this report, I have been asked to assume Plaintiffs' claim of market efficiency.

26. In an efficient market, new publicly available information is rapidly impounded into the stock price, and known news would not be expected to trigger a price reaction.²² Researchers have found that stock prices react "almost immediately" to the release of new information.²³ For example, according to *Investments*, a commonly cited finance textbook, the

²⁰ Based on available analyst reports from Refinitiv Eikon, the Company, and Dr. Nye's turnover materials.

²¹ Nye Report, ¶60.

²² See, for example, Shleifer, Andrei, *Inefficient Markets* (Oxford University Press: New York, NY, 2000), p. 5 ("The principal hypothesis following from quick and accurate reaction of prices to new information is that stale information is of no value in making money, as Fama (1970) points out. [...] The quick and accurate reaction of security prices to information, as well as the non-reaction to non-information, are the two broad predictions of the efficient markets hypothesis."). See, as another example, Shiller, Robert J., "From Efficient Markets Theory to Behavior Finance," *Journal of Economic Perspective*, 17.1 (2003), 83-104 ("Different forms of the efficient markets model differ in the choice of the discount rate in the present value, but the general efficient markets model [...] asserts that any surprising movements in the stock market must have at their origin some new information about the fundamental value [of a share]").

See, also, Cornell, Bradford, *Corporate Valuation* (McGraw-Hill: New York, NY, 1993), pp. 38, 41-42, Brealey, Richard A., Stewart C. Myers and Franklin Allen, *Principles of Corporate Finance* (McGraw-Hill: New York, NY, 10th ed., 2011), p. 330, Bodie, Zvi, Alex Kane, and Alan J. Marcus, *Investments* (McGraw-Hill: New York, NY, 10th ed., 2014), p. 351, and Berk, Jonathan and Peter DeMarzo, *Corporate Finance* (Pearson: Boston, MA, 3rd ed., 2014), pp. 295-296.

Courts have similarly noted that confirmatory news should not cause a statistically significant price reaction. See, for example, *Greenberg v. Crossroads Sys., Inc.*, 364 F.3d 657 (5th Cir. 2004). ("[C]onfirmatory information has already been digested by the market and will not cause a change in stock price.").

²³ See, for example, Cornell, Bradford, *Corporate Valuation* (McGraw-Hill: New York, NY, 1993), p. 42 and Ross, Stephen A., Randolph Westerfield, and Jeffrey F. Jaffe, *Corporate Finance* (McGraw-Hill/Irwin: Boston, MA, 6th ed., 2002), p. 342 ("In an efficient market, the price of shares [...] will immediately adjust to this new information. Investors should not be able to buy the stock on Wednesday afternoon and make a profit on Thursday. This would imply that it took the stock market a day to realize the implication of the FCC press release. The efficient-market hypothesis predicts that the price [...] on Wednesday afternoon will already reflect the information contained in the Wednesday morning press release.").

As another example, a paper cited in the Nye Report suggests that an event study should compare a stock price movement that is "contemporaneous" with the event investigated. Nye Report, footnote 106; Mitchell, Mark L. and Jeffry M. Netter, "The Role of Financial Economics in Securities Fraud Cases: Applications at the Securities and Exchange Commission," *The Business Lawyer*, (Vol. 49, 1994), pp. 557, 558. ("The execution of an event study is quite simple. It involves the identification of an event that causes investors to change their expectations

majority of the stock's price response to a company announcement of earnings or dividends has already occurred within five to ten minutes after the announcement.²⁴ Thus, if new information material to investors is disclosed in an efficient market, one would expect an almost immediate reaction in the stock price to the first public announcement of such material news; if old news is repeated or expected information is confirmed to the market, one would not expect a reaction in the stock price. Thus, a test of whether certain information affects the stock price is a test of whether the stock price reacts when the information is first publicly disclosed.

27. Moreover, according to finance theory, the only information that affects the stock price is information that affects the market's expectation of the discounted value of future cash flows.²⁵ Thus, a change in accounting metrics that does not affect the market's expectation of the discounted value of future cash flows would not be expected to affect the stock price.²⁶ If the stock price reflected some other measure of income, such as accounting earnings rather than cash flow, that would be evidence that the market was inefficient.²⁷

28. An event study can be used to test whether a stock's price reacts to a particular announcement. An event study is a commonly accepted statistical analysis that measures the movement in a stock's price after an event or public announcement, typically adjusting for the

about the value of a firm. The investigator compares a stock price movement contemporaneous with the event to the expected stock price movement if the event had not taken place.”)

²⁴ Bodie, Zvi, Alex Kane, and Alan J. Marcus, *Investments* (McGraw-Hill: New York, NY, 10th ed., 2014), p. 351, citing James M. Patell and Mark A. Wolfson, “The Intraday Speed of Adjustment of Stock Prices to Earnings and Dividend Announcements,” *Journal of Financial Economics*, 13: 1984. See, also, Brealey, Richard A., Stewart C. Myers and Franklin Allen, *Principles of Corporate Finance* (McGraw-Hill: New York, NY, 7th ed., 2003), pp. 351-353.

²⁵ See, for example, Brealey, Richard A., Stewart C. Myers and Franklin Allen, *Principles of Corporate Finance* (McGraw-Hill: New York, NY, 10th ed., 2011), p. 74.

²⁶ Cornell, Bradford, *Corporate Valuation* (McGraw-Hill: New York, NY, 1993), p. 104 (“The argument that ‘only cash matters’ has more than theoretical backing; it is also supported by extensive research. This research focuses on listed companies for which it is possible to conduct direct tests of the relation between value and various measures of income, including cash flow and accounting earnings, because market values for listed companies can be estimated by the stock and debt approach. The results of these tests overwhelmingly support the view that corporate value is based on cash flow. When cash flow and earnings diverge, changes in value are associated with changes in cash flow, not changes in earnings.”).

²⁷ See, for example, Brealey, Richard A., Stewart C. Myers and Franklin Allen, *Principles of Corporate Finance* (McGraw-Hill: New York, NY, 7th ed., 2003), p. 366 (“In an efficient market there are no financial illusions. Investors are unromantically concerned with the firm's cash flows and the portion of those cash flows to which they are entitled.”).

movement in the overall market and/or industry.²⁸ Academics often use an event study to determine how stock prices respond to new information.²⁹ An event study typically uses a statistical analysis called a regression to estimate the relationship between the company's daily stock returns and the daily returns of market and/or industry indices.³⁰ Using the regression results and the returns of the indices, the predicted stock price movement and abnormal stock price movement (or the amount the stock price moves in excess of the predicted amount) can be calculated for the event/period being tested. Then, the statistical significance of the abnormal stock price movement can be tested based on the range of normal expected daily variation in stock prices.

29. In particular, when analyzing the statistical significance of a price reaction to an event, the 5% statistical significance level (*i.e.*, the 95% statistical confidence level) is the commonly applied standard.³¹ If a price reaction is *not* statistically significant, it means that it is within the range of normal expected daily variation in stock prices and cannot be statistically distinguished from zero.

30. Statistical significance is commonly misinterpreted. One example of these misinterpretations is that if a price reaction is statistically significant at the 23% level (*i.e.*, the *p*-value is 0.23), it means that one can be 77% confident that the stock price reacted to the event. However, this is *flatly wrong*.³² For example, according to the former president of the American

²⁸ See, for example, Alexander, Janet C., "The Value of Bad News in Securities Class Actions," *UCLA Law Review*, 41: 1994, Fischel, Daniel R., "Use of Modern Finance Theory in Securities Fraud Cases Involving Actively Traded Securities," *The Business Lawyer* 38: 1982, and Dunbar, Frederick C., and David I. Tabak, "Materiality and Magnitude: Event Studies in the Courtroom," *Litigation Services Handbook: The Role of the Financial Expert* (John Wiley & Sons, Inc.: New York, NY, 3rd ed., 2001), ch. 19.

²⁹ See, for example, MacKinlay, A. Craig, "Event Studies in Economics and Finance," *Journal of Economic Literature*, 35: 1997, and Bowman, Robert G., "Understanding and Conducting Event Studies," *Journal of Business Finance & Accounting*, 10(4): 1983.

³⁰ Regression analysis is used to estimate the relationship between two or more variables. See, for example, Hogg, Robert V. and Elliot A. Tanis, *Probability and Statistical Inference*, (Prentice Hall: Upper Saddle River, NJ, 5th ed., 1997).

³¹ The 5% level is the level most commonly applied by courts and academics to test statistical significance. For a discussion of statistical significance levels, *see*, for example, Freedman, David A., and David H. Kaye, "Reference Guide on Statistics," *Reference Manual on Scientific Evidence* (Washington, D.C.: Federal Judicial, pp. 243-246.

³² See, for example:

- Freedman, David A., and David H. Kaye, "Reference Guide on Statistics," *Reference Manual on Scientific Evidence* (Washington, D.C.: Federal Judicial Center, 3rd ed., 2011) p. 252. ("[I]f results are significant at the 5% level, it is tempting to conclude that the null hypothesis has only a 5% chance of

Financial Association, it is “incorrect to interpret the test as providing $(1 - p\text{-value})\%$ confidence that the effect being tested is ‘true.’”³³ In other words, it is incorrect to interpret the test as providing 77% confidence that the effect being tested is true. Instead, it means that there is only a 23% chance that a price reaction of the same magnitude would be observed given the range of normal stock price volatility.³⁴

31. The lack of a statistically significant price reaction is considered by academics,³⁵ as well as courts,³⁶ as providing compelling evidence of no price impact. For example, according

being correct. This temptation should be resisted.”); and p. 282. (“However, the 5% is often taken to be the chance of the null hypothesis given the data. This misinterpretation is commonplace in the social science literature, and it appears in some opinions describing expert testimony.”)

- Barnes, David W., “Too many probabilities: statistical evidence of tort causation,” *Law and Contemporary Problems* 64(191): 2001, p. 208. (“There is no convenient way to translate the .05 pvalue into a ninety-five-percent confidence that the fact probability is correct, credible, believable, or true.”)

See, in addition, the following video from Khan Academy on “P-values and significance tests” for a simpler explanation of this concept. (“Sometimes people confuse this [the p-value] and they say: Hey is this the probability that the null hypothesis is true given the sample statistics that we got? And I would say, clearly, no, that is not the case. We are not trying to gauge the probability that the null hypothesis is true or not.”) Khan Academy, accessed at: <https://www.khanacademy.org/math/ap-statistics/xfb5d8e68:inference-categorical-proportions/idea-significancetests/v/p-values-and-significance-tests>.

³³ Harvey, Campbell R., “Presidential Address: The Scientific Outlook in Financial Economics,” *The Journal of Finance* 77(4): 2017, p. 1410 (“The p-value does not indicate whether the null hypothesis or the underlying experimental hypothesis is ‘true.’ It is also incorrect to interpret the test as providing $(1 - p\text{-value})\%$ confidence that the effect being tested is true.”).

³⁴ See, for example, Freedman, David A., and David H. Kaye, “Reference Guide on Statistics,” *Reference Manual on Scientific Evidence* (Washington, D.C.: Federal Judicial Center, 3rd ed., 2011) p. 250.

³⁵ See, for example, Freedman, David A., and David H. Kaye, “Reference Guide on Statistics,” *Reference Manual on Scientific Evidence* (Washington, D.C.: Federal Judicial Center, 3rd ed., 2011), p. 254.

See, also, the study in the *International Journal of Economics and Finance* which concludes there is no impact from an event given the lack of a statistically significant reaction: “On the announcement day (day zero), the abnormal return for the bank sector is -0.066% and for both the service and industrial sector is -0.293% and -0.368% respectively, with no significant impact as the t-statistics accept the null hypothesis that the downgrading event has no impact.” See, Abdeldayem, Marwan M. and Ramzi Nekhili, “Credit Rating Changes and Stock Market Reaction in the Kingdom of Bahrain,” *International Journal of Economics and Finance*, 8(8):2016, pp. 23-32. See, also, Fisher, Franklin M., “Multiple Regression in Legal Proceedings,” *Columbia Law Review*, 80(4): 1980.

³⁶ See, for example, *Erica P. John Fund, Inc. v. Halliburton Company*, No. 3: 02-CV-1152-M (N.D. Tex. July 25, 2015, (“To show that a corrective disclosure had a negative impact on a company’s share price, courts generally require a party’s expert to testify based on an event study that meets the 95% confidence standard [...] Coffman found an intraday statistically significant price reaction on Day 1 only at a 90% confidence level, which is less than the 95% confidence level both experts require in their regression analyses and which the Court finds is necessary. [...] In contrast, with and without a multiple comparison adjustment, Allen found no price impact on December 21, 2000. The Court agrees with Halliburton that there was no price impact on December 21, 2000, and finds that Defendants have rebutted the *Basic* presumption as to the allegedly corrective disclosure made on that date.”).

to the Reference Manual on Scientific Evidence “**when studies have a good chance of detecting a meaningful association, failure to obtain significance can be persuasive evidence that there is nothing much to be found.**”³⁷ Note that Plaintiffs and Dr. Nye’s proposed common damages methodology includes the use of an event study to determine “Company-specific price movements caused by the revelation of true facts related to the alleged fraud,” clearly indicating that Plaintiffs and Dr. Nye believe their proposed event study approach has a “good chance of detecting a meaningful association.”³⁸ Thus, in this context, if Dr. Nye’s event study yields no statistically significant price reaction, it would provide evidence of no price impact.³⁹ A practical example that the lack of a statistically significant price reaction provides evidence of the lack of impact is the FDA’s approval requirement for trials on drug efficacy. Specifically, if a statistical test of the hypothesis that a drug is more effective than a placebo fails at the 5% statistical significance level (*i.e.*, there is no statistically distinguishable difference in efficacy between the drug and a placebo), then the drug is rejected—the lack of statistical significance provides evidence that the drug is not better than a placebo.⁴⁰

32. I tested Apache’s stock price reactions using both the event study methodology put forward by Dr. Nye as well as an alternative event study methodology. Dr. Nye’s event study model uses the S&P 500 Index, an index of 500 large companies listed on the NYSE and the NASDAQ, to control for market movements, and a market-capitalization weighted index Dr. Nye constructed using constituents of the S&P 500 Oil & Gas Exploration and Production Index to control for industry movements.⁴¹ Dr. Nye uses a rolling control period of one calendar year

³⁷ Freedman, David A., and David H. Kaye, “Reference Guide on Statistics,” *Reference Manual on Scientific Evidence* (Washington, D.C.: Federal Judicial Center, 3rd ed., 2011), p. 254, emphasis added.

See, also, the study in the *International Journal of Economics and Finance* which concludes there is no impact from an event given the lack of a statistically significant reaction: “On the announcement day (day zero), the abnormal return for the bank sector is -0.066% and for both the service and industrial sector is -0.293% and -0.368% respectively, with no significant impact as the t-statistics accept the null hypothesis that the downgrading event has no impact.” See, Abdeldayem, Marwan M. and Ramzi Nekhili, “Credit Rating Changes and Stock Market Reaction in the Kingdom of Bahrain,” *International Journal of Economics and Finance*, 8(8):2016, pp. 23-32. See, also, Fisher, Franklin M., “Multiple Regression in Legal Proceedings,” *Columbia Law Review*, 80(4): 1980.

³⁸ Nye Report, ¶67.

³⁹ Note this assumes that there is no confounding news.

⁴⁰ See, for example, Kennedy-Shaffer, Lee, “When the Alpha is the Omega: P-Values, ‘Substantial Evidence,’ and the 0.05 Standard at FDA,” *Food Drug Law Journal*, 72(4): 2017, pp. 595-635, which describes the history of the use of statistics by the FDA in the decision-making process for new drugs.

⁴¹ Nye Report, ¶75 and “NYE_00000001.xlsx.” Dr. Nye’s industry index construction excludes Apache’s returns.

prior to each event. Dr. Nye claims to exclude the “events under study” (*i.e.*, “dates during the alleged Class Period on which Apache released quarterly or year-end financial results and/or financial guidance”) from his control period.⁴² However, in addition to excluding those events, Dr. Nye also excludes earnings announcements before the alleged Class Period (which he does not “study”) and non-earnings-related alleged corrective disclosures identified in the Complaint.⁴³

33. The alternative event study controls for market movements with the S&P 500 Index and industry movements with the S&P Oil & Gas Exploration & Production Select Industry Index (the “S&P E&P Index”), an off-the-shelf index of publicly traded oil and gas E&P companies, after removing the effects of the returns of Apache’s stock price.⁴⁴ It uses a rolling control period of 252 trading days, or approximately one calendar year, prior to each event, excluding the alleged corrective disclosure dates. Overall, the alternative event study has a higher explanatory power than Dr. Nye’s event study.⁴⁵

34. My conclusion of no price impact and no link between any of the alleged misrepresentations made during the alleged Class Period and Apache’s stock price during the Focus Period does not depend on which event study model is used.

⁴² Nye Report, ¶¶57,73.

⁴³ “NYE_00003044.xlsx.” See also, Nye Report, footnote 125.

⁴⁴ Data obtained from Bloomberg, L.P. using the tickers SPX and SPSIOP. To remove the effect of the returns of Apache’s stock price on the market and industry indices, I used the weight of Apache’s stock in the S&P 500 and S&P Oil & Gas Exploration & Production Select Industry Index on each day. The S&P Oil & Gas Exploration & Production Select Industry Index includes “[s]tocks [...] classified in the GICS oil & gas exploration & production sub-industry.” See, “S&P Oil & Gas Exploration & Production Select Industry Index,” *S&P Dow Jones Indices*, as of April 28, 2023.

⁴⁵ For example, on the majority of dates tested (alleged misrepresentations and alleged corrective disclosures during the Focus Period), the alternative event study has a higher adjusted R-squared than Dr. Nye’s event study.

VII. A DETAILED ANALYSIS OF THE FOCUS PERIOD SHOWS NO PRICE IMPACT AND NO LINK WITH ANY OF THE ALLEGED MISREPRESENTATIONS MADE DURING THE ALLEGED CLASS PERIOD

A. An analysis of each of the alleged misrepresentations made during the Focus Period shows no evidence of price impact

35. From my review of the Complaint, I do not understand Plaintiffs to be claiming that the alleged misrepresentations during the Focus Period increased the alleged inflation in the stock price when made, but to be thorough, as part of my price impact analysis, I analyzed the market reaction following the alleged misrepresentations during the Focus Period, including analyzing the stock price reaction and examining market and analyst commentary following the alleged misrepresentations, and found no evidence of a price reaction to the alleged misrepresentations when made.

36. The table below shows the price reactions following the alleged misrepresentations during the Focus Period, according to both Dr. Nye's event study model and the alternative event study model. There was no statistically significant increase on 12 of the 13 trading days following the alleged misrepresentations.

Apache Stock Price Reactions Following Alleged Misrepresentations							
Event Date	Reaction Date	Event	Nye Event Study		Alternative Event Study		
			% Price Reaction	Stat. Sig. Increase? ¹	% Price Reaction	Stat. Sig. Increase? ¹	
1.	2/22/18 ²	2/23/18	2017 Form 10-K	0.4%	No	1.1%	No
2.	2/26/18	2/26/18	DUG Executive Conference	-0.6%	No	-0.9%	No
3.	3/26/18	3/26/18	Investor Presentation	-1.6%	No	-1.4%	No
4.	5/3/18	5/3/18	1Q18 Conference Call	-5.3%	No	-4.4%	No
5.	5/30/18	5/30/18	Annual Bernstein Strategic Decisions Conference	0.5%	No	0.6%	No
6.	6/5/18	6/5/18	June Marketing Presentation	1.1%	No	0.6%	No
7.	8/2/18	8/2/18	2Q18 Conference Call	-1.4%	No	-1.5%	No
8.	8/8/18	8/9/18	Conference Call to Discuss Altus Transaction	-5.8%	No	-5.4%	No
9.	9/21/18	9/21/18	Bloomberg Commodities Edge Interview	-0.4%	No	-0.4%	No
10.	2/28/19	3/1/19	2018 Form 10-K	0.2%	No	0.4%	No
11.	5/1 - 5/2/19 ³	5/2/19	1Q19 Press Release and Conference Call	-3.5%	No	-3.2%	No
12.	5/14/19 ⁴	5/14/19	Bloomberg Story	1.3%	No	0.4%	No
13.	7/31 - 8/1/19 ⁵	8/1/19	2Q19 Press Release and Conference Call	3.6%	Yes	4.8%	Yes

Notes and Sources:
 Data from Bloomberg L.P. and "NYSE_00003032.xlsx." Events from the Complaint.
¹ Significance is based on the price reaction's t-statistic, calculated as the price reaction divided by the standard error of the regression over the control period. "Yes" indicates that the price increase is statistically significant at the 5% level.
² The Complaint states that the 2017 Form 10-K was filed on February 23, 2018 (Complaint ¶258); however, according to SEC's website it was filed on February 22, 2018 after market hours.
³ The Complaint states that the press release was issued on May 2, 2019 (Complaint ¶273-274); however, according to a GlobeNewswire article dated May 1, 2019, the press release was issued on May 1, 2019 after market hours.
⁴ The Complaint states that the Bloomberg story was published on May 15, 2019 (Complaint ¶275); however, according to Bloomberg, it was published on May 14, 2019.
⁵ The Complaint states that the press release was issued on August 1, 2019 (Complaint ¶278-279); however, according to a GlobeNewswire article dated July 31, 2019, the press release was issued on July 31, 2019 after market hours.

37. I analyzed market and analyst commentary following the 12 alleged misrepresentations after which there was *no* statistically significant price increase, including examining potential negative confounding news, to see if there was any evidence that any of these alleged misrepresentations could have caused an increase in Apache's stock price. I found that on these 12 dates, there was no indication that any analyst increased their price target or valuation of Apache due to the alleged misrepresentations.

38. Regarding the one alleged misrepresentation that did have a statistically significant price increase, I reviewed market and analyst commentary following that alleged misrepresentation to determine whether there was any evidence that the alleged misrepresentation caused the statistically significant price increase on that day. I found no evidence that the price increase was due to the alleged misrepresentation, but instead found that the price increase was due to positive news unrelated to the alleged misrepresentation.

39. Specifically, Plaintiffs allege that Apache made misstatements in its 2Q19 press release and conference call on July 31, 2019 and August 1, 2019 respectively. In the press release, which was released after market hours on July 31, Plaintiffs claim Defendants misstated that Alpine High's delayed "production" was temporary and Apache would "catch up in the second half of 2019 and exit the year with oil production on plan and with strong momentum heading into 2020."⁴⁶ In the conference call, which occurred during market hours on August 1, Plaintiffs claim Defendants falsely stated that "we like the asset [Alpine High]. It's a large resource as we've proven. There is tremendous rich-gas potential."⁴⁷

40. Analyst commentary indicates that the price increase on this date was due to Apache's 2Q19 EPS and EBITDAX⁴⁸ beating consensus and production beating guidance. For example, analysts stated that Apache had "solid 2Q19 results" and "beat on several metrics:"

APA announced 2Q19 results and provided 3Q19 guidance. Total production of ~455 Mboepd was ~1% above our estimate. [...] Overall, Apache posted solid 2Q19 results (EBITDAX beat & lower capex), though 3Q guide is a little noisy [...] [Stephens, 8/1/19]

APA's 2Q2019 results beat on several metrics with production higher than guidance both domestically and internationally. [...] **2Q19 Earnings:** APA reported an adjusted net gain of \$0.11 per share for the quarter, beating our and the street's \$0.07 estimate. Reported adj. EBITDAX of \$994 million came in near our \$996 MM estimate, beating the \$968 MM consensus estimate. U.S. and company-wide production (Ex-Egypt noncontrolling interest) beat guidance of 260 and 396 MBOED, respectively, while International was in line with guided 132 MBOED. [MUFG, 8/2/19, emphasis original]

41. Dr. Nye similarly states that the statistically significant price increase on this day was due to the beat and "consistent with that expected in an efficient market." Dr. Nye does not attribute the price increase to the alleged misrepresentation. According to Dr. Nye:

Given that: (i) the Company's "2Q2019 results beat on several metrics with production higher than guidance"; (ii) "[l]ike its peers, the company was hit by weak realized prices for natural gas and natural gas liquids in the quarter"; and

⁴⁶ Complaint, ¶278. Note the Complaint states that the press release was issued on August 1, 2019. However, it was issued on July 31, 2019 after market hours. See, for example, "Apache Corporation Announces Second-Quarter 2019 Financial and Operational Results," *GlobeNewswire*, July 31, 2019, 9:46 p.m.

⁴⁷ Complaint, ¶279 and Apache 2Q19 earnings conference call, August 1, 2019.

⁴⁸ EBITDAX refers to earnings before interest, taxes, depreciation, amortization, and exploration expenses. See, for example, "Apache Corporation Announces Second-Quarter 2019 Financial and Operational Results," *Apache Press Release*, July 31, 2019.

(iii) “expectations for the [Company’s] print ... were relatively aligned with the challenging operational backdrop for APA,” the statistically significant Company-specific stock price increase on August 1, 2019 is consistent with that expected in an efficient market. [Nye Report, Exhibit 12]

42. Further, there is no indication that any analysts increased their valuation of Apache due to the alleged misrepresentation. In fact, some analysts *lowered* their expectations for Alpine High following the release of 2Q19 results. For example, analysts at UBS reduced their price target due to concerns about Alpine High’s exposure to weakening commodity prices.

Weak natural gas and NGL pricing in the quarter and a deteriorating macro have also caused us to trim realizations in 2H19 and 1H20. The weaker pricing has led APA to shut in wells [at Alpine High], and we remain cautious on GCX completely addressing the issue. **The combination of the above has led us to reduce our estimates by ~10% going forward and as a result we are reducing our PT to \$21 / sh.** The real option value for APA though is its exploration potential in Suriname; an exploratory well is expected to spud in September. [UBS, 8/5/19, emphasis added]

43. Note Plaintiffs claim that Apache made misstatements on February 23, 2017, August 3, 2017, and February 22, 2018 about Alpine High being economic at low commodity prices.⁴⁹ I find no price impact during the Focus Period from these alleged misstatements and no link between these alleged misstatements and any of the three alleged corrective disclosures during the Focus Period, since following these alleged misstatements, no analysts mentioned these alleged misstatements or incorporated these alleged misstatements into their valuation of Apache and there was no statistically significant increase following these misstatements according to both Dr. Nye’s event study model and the alternative event study model. On the contrary, following these alleged misstatements, analysts explicitly stated that weak commodity prices would challenge the economics of Alpine High. During the Focus Period, analysts consistently repeated that deteriorating commodity prices would drive expectations about Alpine High downward. For example:

- In a report issued on February 23, 2017, analysts at Bank of America stated that a “key risk” to Apache’s Alpine-High-gas-driven growth would be worsened Waha

⁴⁹ Complaint, ¶¶224-226, 244-245, 256-257, 260.

Hub prices due to a surge in local production.⁵⁰ As will be discussed in detail in Section VII.B.1, this risk materialized in 2019.

- On February 22, 2018, Bank of America analysts stated that there was “no visibility” of the long-term commodity price outlook, which would challenge Apache’s investment in Alpine High. The analysts further stated having “conviction” about the value of Apache’s gas-driven growth was “too difficult” and reiterated their “underperform” rating of Apache’s stock.⁵¹
- On August 2, 2018, consistent with their prior statements that deteriorating commodity prices would drive expectations about Alpine High downward, Bank of America analysts explicitly stated that in expectation of gas prices trending towards \$2.50, Alpine High would not be expected to drive strong cashflow growth despite Apache’s good execution in the Alpine High play.⁵²
- A Credit Suisse analyst report on February 22, 2018 stated that Alpine High “naysayers” were unlikely to change their view about the play, as investor concerns about weakening Waha Hub prices continued to grow.⁵³

⁵⁰ Bank of America analyst report, dated February 24, 2017 (“[T]he majority of the planned growth is Alpine High gas, which we expect to dilute APA’s multiple versus peers. A key risk, in our view, is the impact of a flood of new gas production on regional differentials, specifically at Waha hub, leaving APA’s unit cash margins at risk vs oil levered peers.”).

⁵¹ Bank of America analyst report, dated February 22, 2018 (“Apache’s commitment to its Alpine High development continues to anchor an investment outlook that is complicated by the challenges of setting in motion a major project development, absent existing infrastructure and where the longer term outlook on realized prices has no visibility. Still, with 4Q17 earnings, management has endeavored to improve guidance, providing a medium term outlook on how production will evolve and the role that will be increasingly played by gas production as the key driver of growth. But when faced with a weak US natural gas price outlook and uncertain basis, we think the change in mix towards a higher proportion of gas is simply too difficult to have conviction on value until actual prices, costs and cashflow are tangible. Reiterate Underperform.”).

⁵² Bank of America analyst report, dated February August 2, 2018 (“There is no doubt APA is executing well in the Alpine high. But with our house view of US gas prices trending towards \$2.50, with basis discounts applied when APA secured long term tariff to the US Gulf Coast, we struggle to see strong top line growth converted to strong cashflow growth versus more oil levered peers.”).

⁵³ Credit Suisse analyst report, dated February 22, 2018 (“Today’s update and guidance outlook is unlikely to turn the Alpine High “naysayers” more positive on APA. [...] While APA expects its volumes in the play to grow at a >150% CAGR reaching ~160-180 MBoed by 2020, the company “conservatively” expects its oil mix in the play to stay flat with 4Q17 levels at just 7% as growth will predominantly come from natural gas and NGLs given its drilling program will be weighted towards deeper drilling for acreage retention purposes. Notably, this growth is coming at a time when investors are increasingly concerned about Waha basis blowing out even further (is currently ~\$0.90/Mcf) as associated gas volumes ramp in the Delaware Basin (Anadarko Petroleum’s

44. Moreover, as will be discussed in detail in Section VIII.C, throughout the Focus Period and even after the Focus Period, analyst commentary shows no link between the downward changes in expectations about Alpine High and any new understanding of Alpine High's reserves or the mix of oil and wet gas vs. dry gas. Instead, analysts consistently stated that downward changes in Alpine High expectations were driven by changes in commodity prices.

45. In sum, an analysis of the stock price reactions and market and analyst commentary following each of the alleged misrepresentations made during the Focus Period and the February 23, 2017, August 3, 2017, and February 22, 2018 alleged misstatements about Alpine High's economics at low commodity prices shows no evidence of price impact of the alleged misrepresentations when made.

B. An analysis of each of the alleged corrective disclosures during the Focus Period shows no price impact and no link to any of the alleged misrepresentations

46. Plaintiffs claim that the alleged "truth" regarding the alleged misrepresentations was disclosed to the market on five alleged corrective disclosures during the alleged Class Period, including three alleged corrective disclosures during the Focus Period.⁵⁴ An analysis of each of the three alleged corrective disclosures during the Focus Period shows that the alleged misrepresentations did not have price impact and that there is no link between any of the alleged misrepresentations during the alleged Class Period and Apache's stock price during the Focus Period. Moreover, there was no statistically significant price decline from any allegedly corrective information.⁵⁵

CEO stated at our Vail Energy Summit last week he would not be surprised to ultimately see 12-15 Bcfd of associated gas production from the Permian).").

⁵⁴ Complaint, ¶¶303, 319.

⁵⁵ Plaintiffs mention four additional events during the Focus Period in Section V of their Complaint, without describing them as alleged corrective disclosures: October 31, 2019, January 9, 2020, February 26-27, 2020, and March 12, 2020. See, Complaint, ¶¶104-106, 108, 110. An analysis of these events also shows no link and no price impact from any of the alleged misrepresentations. Below is a brief description of these events and the results of the analysis.

1. October 31, 2019 announcement of reduced activity at Alpine High: There was no statistically significant decline following the announcement according to both Dr. Nye's event study model and the alternative event study model. The reduced Alpine High activity was expected given the continued weakness in gas and NGL pricing.
2. January 9, 2020 article on the shutdown of Alpine High's San Antonio headquarters: There was no statistically significant decline following the article according to both Dr. Nye's event study model and

1. **The April 23, 2019 alleged corrective disclosure regarding the deferral at Alpine High did not result in a statistically significant price decline, was expected by the market given the “extremely” low gas prices, and did not change the market’s expectations about Alpine High’s reserves or the mix of oil and wet gas vs. dry gas**

47. Before the market opened on April 23, 2019, Apache issued a press release announcing that the Company had temporarily deferred natural gas production at Alpine High.⁵⁶ Plaintiffs claim that this press release was a “partial” alleged corrective disclosure and allegedly caused Apache’s stock to decline on the same day and over the next three trading days through April 26, 2019.⁵⁷

48. The April 23, 2019 alleged corrective disclosure shows no price impact from the alleged misrepresentations and no link to the alleged misrepresentations, including for the following reasons, which are detailed below:

- a) there was **no** statistically significant decline in Apache’s stock price following the April 23, 2019 press release, according to both Dr. Nye’s event study model and the alternative event study model;
- b) the allegedly corrective information, the deferral of gas production at Alpine High, was in response to “extremely low” regional gas prices and was expected by the market given those prices; and

the alternative event study model. No analyst reports mentioned this article in the two weeks following its publication.

3. February 26-27, 2020 announcement of Alpine High drilling halt and impairment: There was no statistically significant decline following the announcement according to both Dr. Nye’s event study model and the alternative event study model (there was a statistically significant increase). The market was aware of Alpine High’s drilling halt before the announcement and Apache’s pivot away from Alpine High was expected given the collapse in gas and NGL prices.
4. March 12, 2020 announcement of Apache’s dividend cut by 90%: The announcement did not discuss Alpine High. Apache’s dividend cut was in response to the oil price collapse around the start of the COVID-19 (“Covid”) pandemic and was consistent with capital reductions at other E&P companies. According to both Dr. Nye’s event study model and the alternative event study model, there was a statistically significant increase in Apache’s stock price. However, as will be discussed in Section VII.B.3., both models are not applicable to this date due to heightened market volatility.

⁵⁶ Complaint, ¶310. See also, “Apache Corporation Announces Temporary Deferral of Alpine High Natural Gas Production in Response to Recent Pricing at Waha Hub,” *Globe Newswire*, April 23, 2019.

⁵⁷ Complaint, ¶311.

- c) the allegedly corrective information did not change the market's expectations about Alpine High's reserves or the mix of oil and wet gas vs. dry gas

No statistically significant price decline

49. I used both Dr. Nye's event study model and the alternative event study model to test whether there was any statistically significant reaction in Apache's stock following the April 23, 2019 alleged corrective disclosure.⁵⁸ According to both models, there was **no** statistically significant stock price decline on April 23, 2019, the first trading day following the alleged corrective disclosure.

50. Plaintiffs claim that the movement in Apache's stock price from April 24 to April 26, 2019 was caused by the information released on April 23, 2019. However, given that the news about Alpine High's gas deferral was released on April 23, 2019 before market open to no statistically significant price decline, any attempt to attribute the movement in Apache's stock price from April 24 to April 26, 2019 to the alleged corrective disclosure would contradict Plaintiffs' and Dr. Nye's claim that Apache's stock traded in an efficient market. As discussed above, in an efficient market, stock prices react rapidly to impound new information when it is released and, in an efficient market, stocks begin reacting to new information on the first trading day on which the news is publicly disseminated – in this case, on April 23.

51. Moreover, as shown in the tables below, there was **no** statistically significant stock price decline on April 24, April 25, or April 26, 2019, according to both Dr. Nye's event study model and the alternative event study model. The table below shows the results of Dr. Nye's event study from April 23 to April 26, 2019.

⁵⁸ The press release was issued before the market opened on April 23, 2019 and thus any reaction to the press release, in an efficient market, would be expected on April 23, 2019. See, "Apache Corporation Announces Temporary Deferral of Alpine High Natural Gas Production in Response to Recent Pricing at Waha Hub," *Globe Newswire*, April 23, 2019, 6:30 a.m.

**Price Reactions Following the
April 23, 2019 Alleged Corrective Disclosure**

According to Nye's Event Study Model

		Market	Industry	Apache				
		Index	Index	Predicted	% Price		Stat. Sig.	
	Date	Return	Return ¹	Return	Reaction	t-stat	Decline? ²	
1.	4/23/19	-1.8%	0.9%	-1.3%	-0.3%	-1.4%	-1.05	No
<i>Plaintiffs allege a four-day reaction</i>								
2.	4/24/19	-2.6%	-0.2%	-0.3%	-0.6%	-2.0%	-1.48	No
3.	4/25/19	-4.0%	0.0%	-1.2%	-1.3%	-2.7%	-1.94	No
4.	4/26/19	-2.9%	0.5%	-2.3%	-1.9%	-1.0%	-0.73	No

Notes and Sources:

Data from "NYE_00003032.xlsx."

¹ Residual industry index return from "NYE_00003032.xlsx."

² Significance is based on the price reaction's t-statistic, calculated as the price reaction divided by the standard error of the regression over the control period. "Yes" indicates that the price reaction is statistically significant at the 5% level.

The table below shows the results of the alternative event study from April 23 to April 26, 2019.

Price Reactions Following the April 23, 2019 Alleged Corrective Disclosure

According to Alternative Event Study Model

		Market	Industry	Apache			
		Index	Index	Predicted	% Price		Stat. Sig.
Date	Apache	Return	Return	Return	Reaction	t-stat	Decline? ¹
1. 4/23/19	-1.8%	0.9%	-0.2%	-0.4%	-1.4%	-0.99	No
<i>Plaintiffs allege a four-day reaction</i>							
2. 4/24/19	-2.6%	-0.2%	-1.9%	-1.9%	-0.8%	-0.54	No
3. 4/25/19	-4.0%	0.0%	-1.5%	-1.5%	-2.5%	-1.78	No
4. 4/26/19	-2.9%	0.5%	-1.4%	-1.6%	-1.3%	-0.94	No

Notes and Sources:

Data from Bloomberg, L.P.

¹ Significance is based on the price reaction's t-statistic, calculated as the price reaction divided by the standard error of the regression over the control period. "Yes" indicates that the price reaction decline is statistically significant at the 5% level.

52. Overall, the release of information that Plaintiffs allege was corrective of the alleged misrepresentations did not cause any statistically significant decline in Apache's stock price, which demonstrates no link with any of the alleged misrepresentations and no price impact for the April 23, 2019 alleged corrective disclosure due to the alleged misrepresentations. As discussed above, the lack of an observable statistically significant price reaction is considered by academics, as well as courts, as providing evidence of no price impact.

Deferral was in response to "extremely" low gas prices and expected by the market

53. Apache's deferral of gas production at Alpine High, rather than having any link to the alleged misrepresentations made during the alleged Class Period and new information about Alpine High's reserves or the mix of oil and wet gas vs. dry gas, was expected by the market given the then "extremely" low gas prices.

54. According to Plaintiffs, Apache's press release on April 23, 2019 was an alleged corrective disclosure that disclosed "that the Company was scaling back natural gas production

efforts.”⁵⁹ However, Plaintiffs leave out the reason why Apache was scaling back production at Alpine High: the recently reduced regional gas prices at Waha Hub. Apache’s April 23, 2019 press release was titled “Apache Corporation Announces Temporary Deferral of Alpine High Natural Gas Production *in Response to Recent Pricing at Waha Hub*.”⁶⁰ In the press release, Apache noted that the deferral at Alpine High was “in response to extremely low prices at Waha Hub.”⁶¹

55. The Waha Hub, located in the Delaware Basin, is a major physical gathering point for natural gas from the Permian region.⁶² The Waha Hub Natural Gas Spot Price is the pricing benchmark for natural gas produced in the Permian region, including at Alpine High.⁶³ In the four months prior to Apache’s April 23, 2019 press release, the Waha Hub Natural Gas Spot Price had been declining and substantially below the Henry Hub Natural Gas Spot Price, the U.S. benchmark of natural gas pricing.⁶⁴ In particular, as shown in the chart below, the Waha Hub Natural Gas Spot Price *halved* from an average of approximately \$2/MMBtu (million British thermal unit) in 2018 to approximately \$1/MMBtu from the beginning of 2019 to April 22, 2019. This was in part due to the Waha Hub’s abundance of natural gas production and the lack of capacity to ship away that natural gas.⁶⁵ In fact, in late March 2019, the Waha Hub Natural Gas Spot Price even went negative following unplanned pipeline failures.⁶⁶

⁵⁹ Complaint, ¶¶310-311.

⁶⁰ “Apache Corporation Announces Temporary Deferral of Alpine High Natural Gas Production in Response to Recent Pricing at Waha Hub,” *Globe Newswire*, April 23, 2019, emphasis added.

⁶¹ “Apache Corporation Announces Temporary Deferral of Alpine High Natural Gas Production in Response to Recent Pricing at Waha Hub,” *Globe Newswire*, April 23, 2019.

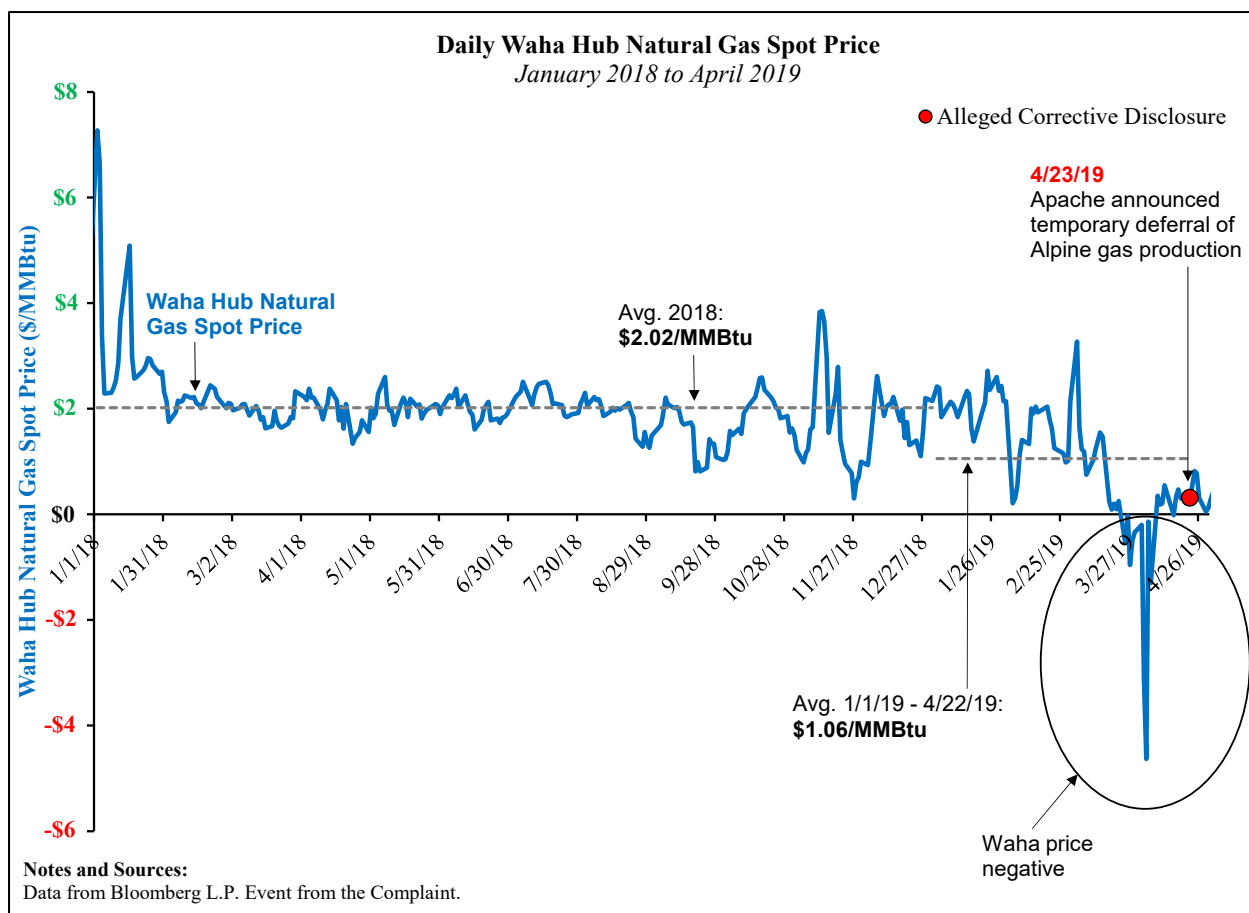
⁶² See, for example, “Permian Gas Price And Fundamentals,” *AEGIS Hedging*, May 19, 2023.

⁶³ See, for example, “Waha Hub spot gas’ basis spread blows out on PHP maintenance,” *S&P Global Commodity Insights*, May 2, 2022.

⁶⁴ See, for example, “Waha Hub gas prices hit negative territory as Permian pipe restricts flow,” *S&P Global Market Intelligence*, March 22, 2019 and “U.S. Henry Hub natural gas price expected to increase from recent lows,” *U.S. Energy Information Administration*, March 16, 2023.

⁶⁵ See, for example, “Waha Hub gas prices hit negative territory as Permian pipe restricts flow,” *S&P Global Market Intelligence*, March 22, 2019.

⁶⁶ See, for example, “Waha Hub gas prices hit negative territory as Permian pipe restricts flow,” *S&P Global Market Intelligence*, March 22, 2019.



56. Moreover, according to analysts, Apache’s announcement of the deferral of gas production at Alpine High on April 23, 2019 was expected and not a surprise to the market. Analysts indicated that the deferral was expected given the current weak regional natural gas price. For example, analysts at Scotiabank and Stephens stated that the deferral of Alpine High production was due to the “extremely low” current Waha Hub natural gas price and was not a surprise to the market.

APA announced that **due to extremely low prices at Waha Hub**, it has initiated natural gas volume deferrals at Alpine High. [...] While optically we view the release as a negative, **we do not think it is a surprise to the market** that depressed Waha pricing is hampering Alpine cash generative capabilities. [Stephens, 4/23/19, emphasis added]

Not unexpectedly, Apache has decided to defer certain natural gas production out of its gas-heavy Alpine High position in the Permian Basin **due to extremely low WAHA hub pricing**. [Scotiabank, 4/23/19, emphasis added]

57. Plaintiffs claim that a “flashnote” issued by analysts at Macquarie on April 23, 2019 is evidence that “[f]inancial media and securities analysts noted the deferral introduced

greater risk and delay at Alpine High.”⁶⁷ However, in the same “flashnote,” Macquarie analysts described the Alpine High natural gas production as “prudent” and “expected” given the weakness of regional gas pricing. Further, the Macquarie analysts reiterated their “neutral” rating of Apache stock and did *not* change their price target.

Given the severity of **local Permian natural gas pricing weakness**, we think the deferral of gas is **prudent and likely expected by investors**. [Macquarie, 4/23/19, emphasis added]

58. As noted above in Section VI., in an efficient market, stock prices react rapidly to incorporate new information when it is released and do not react in response to known or expected news. The April 23, 2019 announcement of Alpine High production deferral was already expected by the market given the weak Waha Hub natural gas prices. Thus, in an efficient market, no portion of Apache’s stock’s price reaction following the April 23, 2019 alleged corrective disclosure can be attributed to deferred Alpine High production or the alleged misrepresentations.

The market’s expectations about Alpine High’s reserves and the mix of oil and wet gas vs. dry gas did not change

59. The April 23, 2019 alleged corrective disclosure did not reveal any new information about the alleged fraud or change the market’s expectations about Alpine High’s reserves or the mix of oil and wet gas vs. dry gas. Instead, the Company announced a deferral in production in response to the currently “extremely low prices at Waha Hub.”

60. Moreover, following the April 23, 2019 alleged corrective disclosure, no analyst attributed the deferral to any revelation regarding Alpine High’s quantity or mix of oil and wet gas vs. dry gas. Instead, analysts described Alpine High’s production deferral as “shut-ins,” which are defined as “available oil or gas which is not being produced from an existing well.”⁶⁸ In other words, according to analysts, there was available oil or gas at Alpine High but it was not being produced. Analysts noted that the shut-ins at Alpine High were due to the weak commodity price outlook.

To date, we’ve already seen **Waha regional gas pricing** (\$1.428/Mcf in 1Q19, - \$0.29 in 2Q19) **compel shut-ins at Alpine High** for APA, and we suspect that a

⁶⁷ Complaint, ¶312.

⁶⁸ “Shut-in,” *Merriam Webster*, accessed at: <https://www.merriam-webster.com/dictionary/shut-in>.

combination of weak pricing and physical constraints should create some near-term noise until pipelines come online in 3Q. [Cowen, 4/26/19, emphasis added]

On Tuesday (4/23/19) APA announced that it initiated **natural gas production volume deferrals (shut-ins) in the Alpine High operating area** starting in late March **due to ‘extremely low prices at Waha Hub’** in the Permian Basin.

Management will monitor daily natural gas prices and will return shut-in gas to sales when it is profitable [Barclays, 4/28/19, emphasis added]

61. Further, as will be discussed in detail in Section VIII.A, none of the analysts changed their understanding of Alpine High’s reserves or mix of oil and wet gas vs. dry gas. For example, Credit Suisse analysts estimated Alpine High’s “unbooked reserves” of wet gas, dry gas, and oil throughout the Focus Period.⁶⁹ Credit Suisse analysts did not update their estimates of Alpine High’s “unbooked reserves” in the week following the April 23, 2019 alleged corrective disclosure. When they updated their estimates on May 2, 2019, there was essentially no change in the estimated quantity or mix of Alpine High’s “unbooked reserves” of wet gas, dry gas, and oil.

62. Thus, in sum, the April 23, 2019 alleged corrective disclosure shows no price impact from the alleged misrepresentations for multiple reasons, including that i) there was no statistically significant decline in Apache’s stock price following the announcement, ii) the deferral of Alpine High gas production was expected given “extremely low” gas prices and thus in an efficient market could not affect the stock price, and iii) the allegedly corrective information did not change the market’s expectations about Alpine High’s reserves or the mix of oil and wet gas vs. dry gas.

2. The price decline after the October 25, 2019 alleged corrective disclosure regarding the resignation of Apache’s Senior VP of Worldwide Exploration was not related to Alpine High and instead was explicitly attributed to concerns about Apache’s Suriname exploration

63. According to Plaintiffs, on October 25, 2019, “media reports revealed that [Apache Senior Vice President of Worldwide Exploration] Keenan had abruptly ‘resigned.’”⁷⁰ Plaintiffs claim that analysts and the media “easily connected news of Keenan’s departure to the

⁶⁹ “Unbooked reserves” reflect the quantity of reserves in a play that are possible and probable, but not proven. See footnote 112 for more detail.

⁷⁰ Complaint, ¶¶313-314. See, for example, “Apache: SVP of Worldwide Exploration Steven Keenan Resigned,” *Bloomberg*, October 25, 2019.

Alpine High debacle” and that this news was a “partial” alleged corrective disclosure that allegedly caused a decline in Apache’s stock price.⁷¹

64. The October 25, 2019 alleged corrective disclosure shows no price impact from the alleged misrepresentations and no link to the alleged misrepresentations, including for the following reasons, which are detailed below:

- a) all analyst commentary following this announcement explicitly attributed Apache’s stock price decline on that day to market speculation about Apache’s Suriname exploration and not due to any new news about Alpine High; and
- b) no new information about Alpine High was revealed.

Analysts attributed stock price decline to Suriname concerns

65. According to both Dr. Nye’s event study model and the alternative event study model, there was a statistically significant decline in Apache’s stock price on October 25, 2019.⁷² While Apache’s stock price did decline following the announcement of Mr. Keenan’s resignation, which occurred during market hours, analysts attributed the decline in Apache’s stock price to concerns about the Company’s Suriname exploration and not to any new news about Alpine High.

66. On October 25, 2019, only three analyst reports on Apache were issued. All three analyst reports directly attributed Apache’s stock price decline to the market’s concerns about Apache’s Suriname exploration. None of the analyst reports linked Apache’s stock price decline to any new news about Alpine High’s oil and wet gas reserves or its mix.

67. The Credit Suisse analyst report issued on October 25, 2019, an analyst report cited in the Complaint,⁷³ stated that Mr. Keenan’s resignation coincided with Apache’s drilling in Suriname, and that the Apache’s stock price decline on this date highlighted the market’s “high expectations” for the Suriname well.

⁷¹ Complaint, ¶¶313-314.

⁷² The media reports were issued during market hours on October 25, 2019 and thus any reaction to the news, in an efficient market, would be expected on October 25, 2019. See, for example, “Apache: SVP of Worldwide Exploration Steven Keenan Resigned,” *Bloomberg*, October 25, 2019, 9:44 a.m.

⁷³ Complaint, ¶314.

Timing of resignation is concerning. While Mr. Keenan's exact role in Suriname is not clear (APA claims the resignation is not connected to the exploration prospect), **APA is underperforming peers** by >5% today given the timing of the departure of the head of Worldwide Exploration when the company is on the 31st day of drilling the **Suriname well**, i.e. is now within the expected 30-60 day spud-to-TD window. **Today's sell-off nonetheless highlights the high expectations for the well** already baked into APA's stock price [...] [Credit Suisse, 10/25/19, emphasis original and added]

68. The RBC Capital Markets analyst report issued on October 25, 2019 stated that Apache's stock price dropped due to investor concern about the Suriname well.

We think **APA share weakness is a reaction to investor concern that the resignation is related to** the outcome of APA's Maka-1 exploration well in **Suriname**. [RBC Capital Markets, 10/25/19, emphasis added]

69. The Truist Securities analyst report issued on October 25, 2019 indicated that Apache's stock price dropped was linked to speculation about the Suriname well.

Apache's stock underperformed this morning (down ~5.5% vs. XOP up ~1%) **on investor speculation** that a SVP's resignation (See Link) is linked **to an upcoming unsuccessful Suriname** Maka-1 exploration well in Block 58. [Truist Securities, 10/25/19, emphasis added]

70. The October 25, 2019 *Bloomberg* article cited in the Complaint also stated that Mr. Keenan's departure could "fuel concerns" about the Suriname well.⁷⁴

The geologist's departure may fuel concerns about the fate of Apache's search for Crude in Suriname, adjacent to an Exxon Mobil Corp. discovery that's one of the world's biggest finds in years. ["Apache Executive's Departure Sparks Worst Rout Since 2016," *Bloomberg*, 10/25/19]

71. *None* of the analyst reports or news stories issued on this date attributed the stock price decline to any news about Alpine High, but rather to Suriname exploration concerns, which demonstrates no link between the alleged misrepresentations and Apache's stock price during the Focus Period and no price impact for the October 25, 2019 alleged corrective disclosure due to the alleged misrepresentations.

No new information revealed about Alpine High

72. The October 25, 2019 alleged corrective disclosure revealed no new information about Alpine High. Plaintiffs claim that "[a]nalysts and the mainstream media easily connected

⁷⁴ Complaint, ¶314.

news of Keenan’s departure to the Alpine High debacle.”⁷⁵ However, when discussing Mr. Keenan’s relationship with Alpine High, analysts and media only repeated known facts about Alpine High, including the effect of weak commodity prices on Alpine High’s production. For example, analysts at RBC Capital Markets stated that Mr. Keenan was part of the team that discovered Alpine High and commented that Alpine High results did not meet expectations due to weak natural gas and NGL prices.⁷⁶ The effect of weak commodity prices on Alpine High was already known – as an example, on October 7, 2019, analysts at Cowen commented that “given particularly weak NGL pricing and gas pricing, it’s likely that APA looks to redeploy capital away from Alpine High[.]”⁷⁷

73. Moreover, as will be discussed in detail in Section VIII.A, none of the analysts changed their understanding of Alpine High’s reserves or mix of oil and wet gas vs. dry gas. For example, Credit Suisse analysts estimated Alpine High’s “unbooked reserves” of wet gas, dry gas, and oil throughout the Focus Period. Credit Suisse analysts did not change their estimates of Alpine High’s “unbooked reserves” after the October 25, 2019 alleged corrective disclosure.⁷⁸

74. Thus, in sum, the October 25, 2019 alleged corrective disclosure shows no price impact from the alleged misrepresentations for multiple reasons, including that i) all analyst commentary following the announcement attributed Apache’s stock price decline on that day to market concerns about Apache’s Suriname exploration and ii) no new information about Alpine High was revealed.

3. The March 16, 2020 alleged corrective disclosure was in a *Seeking Alpha* article that nobody mentioned, let alone tied to any price drop, and the article revealed no new information about Apache at all

75. Plaintiffs claim that the March 16, 2020 *Seeking Alpha* article disclosed how Alpine High had left Apache “particularly challenged amongst its E&P peers” with high levels of

⁷⁵ Complaint, ¶1314.

⁷⁶ RBC Capital Markets analyst report, dated October 25, 2019 (“Mr. Keenan was a major part of the team that discovered the Alpine High play that has been a significant investment for APA. However, we think the outcome of results from Alpine High have not met high expectations and due to weakening natural gas and NGL prices, we expect that APA could allocate activity away from Alpine high in favor of oilier targets in other parts of the Permian.”).

⁷⁷ Cowen analyst report, dated October 7, 2019.

⁷⁸ See, Credit Suisse analyst reports dated August 1, 2019 and October 31, 2019.

debt.⁷⁹ According to Plaintiffs, this announcement allegedly caused Apache's stock price to fall over the next two trading days (March 16 and 17).⁸⁰

76. The March 16, 2020 alleged corrective disclosure shows no price impact from the alleged misrepresentations and no link to the alleged misrepresentations, including for the following reasons, which are detailed below:

- a) no analyst or news story mentioned the *Seeking Alpha* article, let alone tied it to any price drop;
- b) there was no new news about Apache at all, let alone Alpine High; and
- c) both Dr. Nye's event study model and the alternative event study model are not applicable to this date due to increased market volatility

No analyst or news story mentioned the Seeking Alpha article or tied it to any price drop

77. No analyst or news story discussed or even mentioned the *Seeking Alpha* article following the March 16 alleged corrective disclosure, let alone tied it to any drop in Apache's stock price. In particular, a detailed search of analyst reports on Apache from Refinitiv Eikon, the Company, and Dr. Nye's turnover materials, and a detailed search of news stories from Factiva and Bloomberg shows that there was no mention of the March 16, 2020 *Seeking Alpha* article on Apache.

78. Moreover, unlike analyst reports that are issued by professional financial analysts at brokerage firms, *Seeking Alpha* is a provider of crowdsourced content and not a "licensed securities dealer, broker or US investment adviser or investment bank."⁸¹ Sarfaraz A. Khan, the

⁷⁹ Complaint, ¶315. See also, "The Oil Price Crash Puts Apache Corporation In A Tough Spot," *Seeking Alpha*, March 16, 2020.

⁸⁰ Complaint, ¶316.

⁸¹ "We Are Seeking Alpha," accessed at: <https://about.seekingalpha.com/>.

author of the at-issue *Seeking Alpha* article, describes himself as a “financial writer and investor,”⁸² and there is no indication that Mr. Khan was professionally employed.⁸³

79. As discussed above, analysts typically issue reports after new important information about the company is released, and these reports play an important role in disseminating information about a stock and can be a valuable source of information on market knowledge and sentiment at the time. The lack of analyst reports and any news stories mentioning the *Seeking Alpha* article after this date is consistent with the lack of price impact and demonstrates that the *Seeking Alpha* article was not important to the market’s valuation of Apache.

No new news about Apache at all, let alone Alpine High

80. Plaintiffs claim that the March 16, 2020 *Seeking Alpha* article disclosed how Alpine High had left Apache “particularly challenged amongst its E&P peers” with high levels of debt.⁸⁴ However, contrary to Plaintiffs’ claim, the article disclosed no new information about Apache or Alpine High at all. In fact, contrary to Plaintiffs’ theory that Alpine High was “too heavy on unprofitable ‘dry’ gas,” the *Seeking Alpha* article described Alpine High as “wet-gas rich.”⁸⁵ Moreover, as will be discussed in detail in Section VIII.A, no analysts changed their understanding of the reserves or mix of oil and wet gas vs. dry gas at Alpine High.

81. In particular, the information in the *Seeking Alpha* article about Apache’s debt that Plaintiffs claim was corrective (and in fact, the only part of the article Plaintiffs claim was corrective) was not new news. As noted above in Section VI., in an efficient market, stock prices react rapidly to incorporate new information when it is released and do not react in response known or expected news.

82. Plaintiffs claim that the article revealed that Apache did not have a “strong balance sheet” with “high levels of debt” of over \$8 billion in 2019, and a “lofty debt-to-equity

⁸² Profile page of Sarfaraz A. Khan on *Seeking Alpha*, accessed at: <https://seekingalpha.com/author/sarfaraz-a-khan>.

⁸³ Profile page of Sarfaraz A. Khan on *LinkedIn*, accessed at: <https://www.linkedin.com/in/sarfaraz-khan-61012b34/>.

⁸⁴ Complaint, ¶315.

⁸⁵ “The Oil Price Crash Puts Apache Corporation In A Tough Spot,” *Seeking Alpha*, March 16, 2020.

ratio of almost 250% - the highest among all large-cap independent oil producers.”⁸⁶ However, all of this information was publicly available and known *before* the *Seeking Alpha* article was published and was thus not new news.

83. First, information about Apache’s \$8 billion debt and equity as of 2019 that the *Seeking Alpha* article used to calculate the “debt-to-equity ratio of almost 250%” was released to the market as part of Apache’s 4Q19 and FY2019 financial results on February 26, 2020 after market close.⁸⁷ There was a statistically significant increase in Apache’s stock price on this date according to Dr. Nye’s event study model and the alternative event study model.

84. Second, many analysts had examined Apache and other E&P companies’ debt before the *Seeking Alpha* article was published. For example, a Cowen analyst report on the E&P industry on March 11, 2020 listed the debt amount and maturity terms of Apache and other E&P companies.⁸⁸ As another example, a JP Morgan analyst report on March 2, 2020 explicitly listed its calculation of Apache’s debt-to-equity ratio as of 2019.⁸⁹

85. Moreover, analysts had discussed Apache’s debt situation, before the alleged corrective disclosure and expressed no concern about Apache’s solvency. For example:

Liquidity remains ample in our view, with \$247mm of cash on hand, ~\$4.0bn of total revolver capacity, and \$293mm of debt maturing in the next 18 months. [JP Morgan, 2/27/20]

APA has **plenty of liquidity** with a fully undrawn \$4bn unsecured revolver & only ~\$293MM/\$463MM of 2021/22 debt maturities. [Credit Suisse, 3/12/20, emphasis added]

Apache currently has a \$4Bn undrawn revolver and sees **ample flexibility** in addressing \$937MM in maturities coming due between Feb 2021 and Jan 2023. [Truist Securities, 3/12/20, emphasis added]

86. Contrary to Plaintiffs’ claim, the *Seeking Alpha* article stated that the primary reason for Apache’s financial stress was plummeting commodity prices caused by the Covid

⁸⁶ Complaint, ¶115.

⁸⁷ “Apache Corporation Announces Fourth-Quarter and Full-Year 2019 Financial and Operational Results,” *Apache Press Release*, February 26, 2020.

⁸⁸ Cowen analyst report on E&P industry, dated March 11, 2020. See also, Scotiabank analyst report on Apache, dated February 28, 2020.

⁸⁹ JP Morgan analyst report on Apache, dated March 2, 2020.

pandemic.⁹⁰ In fact the title of the article “The Oil Crash Puts Apache Corporation In A Tough Spot” highlights that the focus of the article is the collapse in oil prices rather than any information about Alpine High. Further, the *Seeking Alpha* article itself concluded that Apache would have ample time to prepare for the maturities of its debt even with the plummeting commodity prices:

The good thing, however, is that Apache doesn’t have any significant (>\$500 million) near-term debt maturities. The company has a total of \$937 million near-term debt which becomes due between 2021 and 2023 [...] A vast majority of its total debt matures after 2024. I think **the company has ample time to devise a plan to shore up its finances**, mainly through the sale of non-core assets. [“The Oil Price Crash Puts Apache Corporation in a Tough Spot,” *Seeking Alpha*, 3/16/20, emphasis added]

87. Moreover, as will be discussed in detail in Section VIII.A, none of the analysts changed their understanding of Alpine High’s reserves or mix of oil and wet gas vs. dry gas. For example, Credit Suisse analysts estimated Alpine High’s “unbooked reserves” of wet gas, dry gas, and oil throughout the Focus Period. Credit Suisse analysts did not decrease their estimates of Alpine High’s “unbooked reserves” after the March 16, 2020 alleged corrective disclosure.⁹¹

Both Dr. Nye’s event study model and the alternative event study model are not applicable to this date due to increased market volatility

88. The Covid pandemic, along with the oil price war between Saudi Arabia and Russia, caused significant market uncertainty during March 2020.⁹² Dr. Nye’s event study model and the alternative event study model do not account for this increased market volatility starting in March 2020 and are not applicable to the March 16, 2020 alleged corrective disclosure. However, given that the March 16, 2020 alleged corrective disclosure revealed no new information about Alpine High and that nobody mentioned the article, an adjustment to either event study model to account for increased market volatility would not be necessary. To the extent that there was any price reaction, there can be no link to the alleged fraud, given that there

⁹⁰ “The Oil Price Crash Puts Apache Corporation In A Tough Spot,” *Seeking Alpha*, March 16, 2020.

⁹¹ See, Credit Suisse analyst reports dated February 27, 2020 and May 7, 2020.

⁹² See, for example, “Dow Jones Today, Bear Market Worsens On Trump Response To Coronavirus Pandemic; Boeing Shares Collapse,” *Investor’s Business Daily*, March 12, 2020 (“Stocks ripped into new bear market lows Thursday, with Dow Jones industrials diving more than 2,000 points, after a Wednesday night speech from President Donald Trump ramped up the U.S. response to the coronavirus pandemic. Travel, transport and oil stocks were among the hardest hit in broad early selling.”).

was no new news about Alpine High (or Apache) in the *Seeking Alpha* article and no analyst or news story even mentioned the *Seeking Alpha* article.⁹³

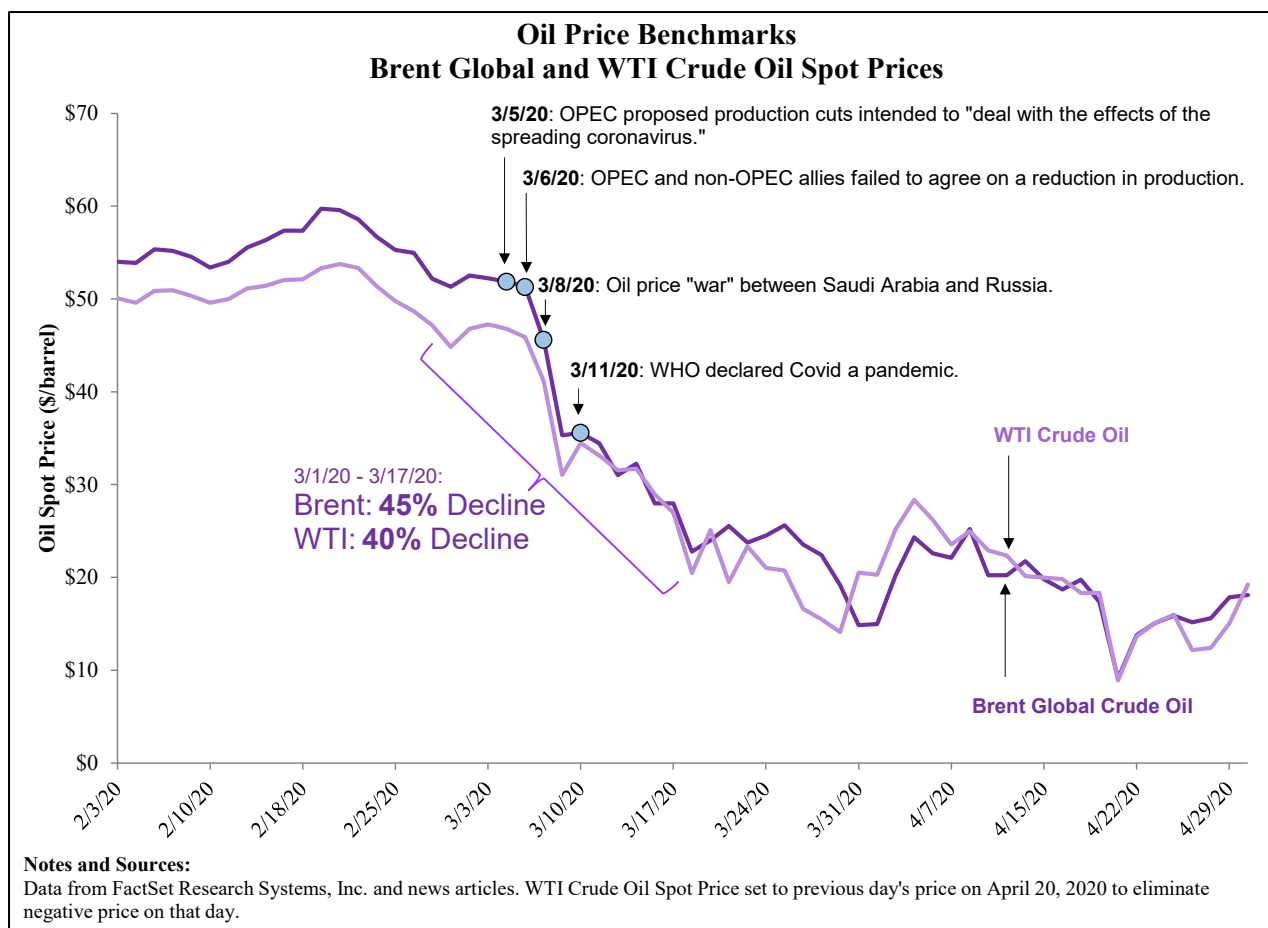
89. Specifically, in March 2020, oil prices began to decline due to sudden and unprecedented events, including an oil price war between Saudi Arabia and Russia that unexpectedly increased oil supply and the imposition of stay-at-home orders in response to the Covid pandemic which caused oil demand to plummet. Throughout the Focus Period, oil made up around 80% of Apache's production revenue, with around 40% coming from the U.S. and the rest from Egypt and the North Sea.⁹⁴ Apache was thus exposed to both international and U.S. oil pricing. The chart below shows the movements of the Brent Global ("Brent") and the West Texas Intermediate ("WTI") Crude Oil spot prices, two commonly used benchmarks for international and U.S. oil pricing respectively,⁹⁵ in relation to select events relevant to the dramatic oil price changes in March 2020.⁹⁶

⁹³ The article was released before the market opened on March 16, 2020 and thus any reaction to the news, in an efficient market, would be expected on March 16, 2020. See, "The Oil Price Crash Puts Apache Corporation In A Tough Spot," *Seeking Alpha*, March 16, 2020, 3:35 a.m.

⁹⁴ From 2018 to 2020, approximately 80% of Apache's total production revenue was made up of oil production. Apache FY20 Form 10-K, filed February 26, 2021, p.36.

⁹⁵ See, for example, "Energy Investing Basics: WTI vs. Brent Crude Oil," *Charles Schwab*, February 22, 2023; see also, Apache FY20 Form 10-K, filed February 26, 2021, pp. 6, 38, 43.

⁹⁶ Note David Sullivan, former Executive Director at Lead Plaintiff Plymouth County Retirement Systems, testified that March 2020 was a time period of dramatic fluctuations in the market. See, Sullivan Deposition, 73:2-8 ("Q. And what do you mean by "unusual fluctuations in the market as a whole"? A. That the, you know, case of March of 2020, the decreases and the subsequent increases were just, you know, more dramatic than, you know, other periods – or normal periods of time.").



90. As the chart shows, by March 17, 2020 (the last day Plaintiffs allege Apache's stock price declined as a result of the alleged corrective disclosures), oil prices had declined by more than 40% in just two weeks. Further, by the end of March 2020, the WTI and Brent Crude Oil spot prices had declined by approximately 70% from the beginning of March.⁹⁷ Some of the key dates and events during this unprecedented time period include:

- Early 2020: Covid and associated shutdowns caused economic disruption and reduced demand for oil (especially in China, one of the world's largest oil importers).⁹⁸

⁹⁷ Based on data from FactSet Research Systems, Inc.

⁹⁸ "Why oil prices are crashing and what it means," *CNN*, March 9, 2020. ("The coronavirus has undermined energy demand worldwide, but especially in China, which is now the number one importer of crude oil, guzzling roughly 10 million barrels a day. Factories have been idled and thousands of flights canceled around the world as the coronavirus outbreak that began in Wuhan, China, has become a global pandemic. The International Energy Agency said Monday that it expects demand will contract this year for the first time since the recession in 2009 that followed the global financial crisis."). See also, "The Coronavirus Crash Of 2020, And The Investing Lesson It Taught Us," *Forbes*, February 11, 2021. ("As the pandemic began [its] spread in March and

- March 5, 2020: The Organization of the Petroleum Exporting Countries (“OPEC”) proposed production cuts, intending to “deal with the effects of the spreading coronavirus on demand.”⁹⁹
- March 6, 2020: OPEC and non-OPEC allies failed to agree on a reduction in production as Saudi Arabia could not convince Russia to commit to deeper supply cuts.¹⁰⁰
- March 8, 2020: Saudi Arabia cut its oil prices, setting off a price war on oil with Russia.¹⁰¹ When U.S. markets opened on March 9, “U.S. crude oil tumbled from \$41 a barrel to around \$30 in a matter of minutes, going on to post its biggest one-day drop since the first Gulf War in 1991.”¹⁰²
- March 11, 2020: The World Health Organization (“WHO”) declared Covid a pandemic.¹⁰³

91. News articles published at the end of March 2020 illustrate the extreme impacts that these events had on global oil markets over that month:

government officials around the world shutdown economic activity, panic triggered by the economic consequences and uncertainty led to a stock market crash that included the three worst point drops in U.S. history. [...] Between Feb. 12 and March 23, the Dow lost 37% of its value. By [the] middle of March, panic was rising. As the US went into lockdown mode, over 20 million jobs were lost, businesses closed and the virus continued [its] spread. Investors watched as their retirement savings lost 30% in two weeks, and speculation about how bad it could get created even more fear among investors.”).

⁹⁹ “OPEC Proposes a Large Cut in Oil Output,” *The New York Times*, March 5, 2020.

¹⁰⁰ “After a Long Fall in Oil Prices, a Crash,” *The Wall Street Journal Online*, March 15, 2020. See also, “OPEC+ fails to agree on massive supply cut, sending crude prices to 2017 lows,” *CNBC*, March 6, 2020. (“OPEC and non-OPEC allies failed on Friday to agree on how much oil production to cut amid the coronavirus outbreak, with Russia reportedly refusing to give the green light to the deepest supply cuts since the global financial crisis. Oil prices initially slipped Friday afternoon on reports that Moscow said it wasn’t prepared to approve a further reduction in production. Later, Reuters also reported that OPEC and its allies had even failed to agree on rolling over existing cuts, further weighing on crude prices. Then a statement by the oil group said it would continue discussions and made no mention of any cuts.”).

¹⁰¹ “Oil nose-dives as Saudi Arabia and Russia set off ‘scorched earth’ price war,” *CNBC*, March 8, 2020. (“Oil prices fell through the floor in early trading Monday, tanking as much as 30% after Saudi Arabia slashed its crude prices for buyers. The kingdom is reportedly preparing to open the taps in an apparent retaliation for Russia’s unwillingness to cut its own output.”).

¹⁰² “After a Long Fall in Oil Prices, a Crash,” *The Wall Street Journal Online*, March 15, 2020.

¹⁰³ “WHO Director-General’s opening remarks at the media briefing on COVID-19 - 11 March 2020,” *World Health Organization*, March 11, 2020.

Saudi Arabia launched the offensive at the beginning of the month after Russia, its partner in the so-called Opec+ alliance, refused to join in making deeper cuts to crude production to support prices. **In response, the kingdom has said it will open the taps to demonstrate its power in the market. But the decision was made before it became clear how badly coronavirus would hit global demand**, raising hopes Saudi Arabia can be convinced to alter its stance — even as it remains at odds with Russia over how to respond to the crisis. One Saudi source familiar with the kingdom’s energy policy conceded the collapse in oil demand — now estimated at being between 10 per cent and 25 per cent of the 100m barrel a day global market — had far exceeded their projections in early March, before the start of widespread lockdowns and flight cancellations. **The global oil industry is now facing the prospect of running out of storage in a matter of weeks as the most severe demand slump in history coincides with rising supplies.** [“US puts pressure on Saudi Arabia to end oil price war,” *Financial Times*, March 25, 2020, emphasis added]

The global oil industry is facing its biggest demand drop in history, with traders and analysts forecasting crude consumption could fall as much as a quarter next month because of widespread lockdowns across the western world as the pandemic spreads. [...] **Oil prices have fallen more than half in the past month as widespread lockdowns in Europe and North America have slashed oil demand. While demand has collapsed, the supply of oil has also increased rapidly because of the price war between Saudi Arabia and Russia.** Saudi Arabia on Monday said it planned to raise exports even further, as its own domestic consumption drops during the pandemic. [“US crude oil price falls below \$20,” *Financial Times*, March 30, 2020, emphasis added]

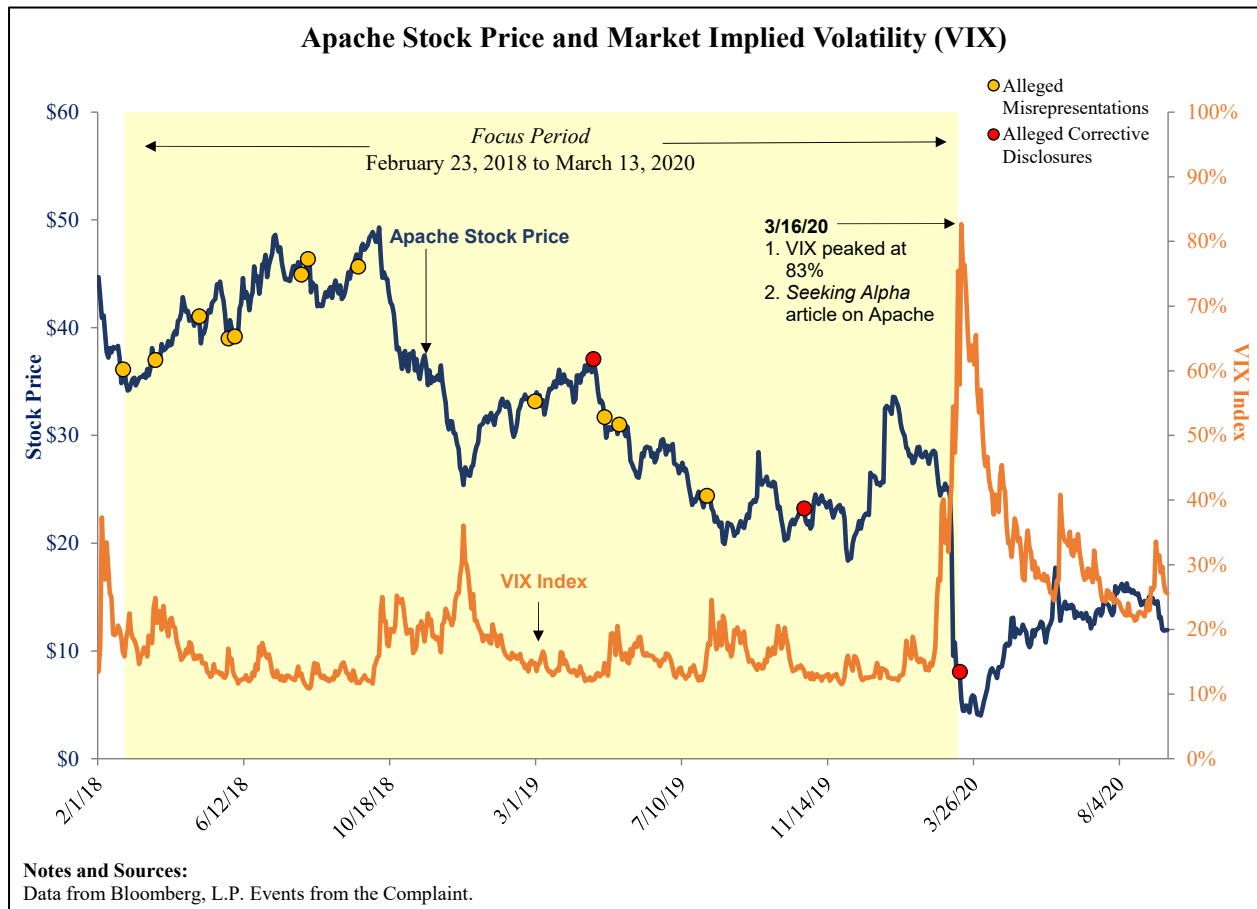
92. As a result of the dramatic oil price decline, many E&P companies, including Apache, announced a reduction in planned capital expenditure, a reduction in drilling and production activities, and dividend cuts to protect their balance sheets, which analysts considered “prudent.”¹⁰⁴ The March 16, 2020 *Seeking Alpha* that Plaintiffs allege as a corrective disclosure article also discussed Apache’s dividend cut, stating that it was “a step in the right direction” and will “soften the blow coming from weak oil, gas and NGL prices.”¹⁰⁵

93. As a result of the unprecedented events described above, volatility in the market dramatically increased around the March 16, 2020 alleged corrective disclosure. For example, as shown in the chart below, the Chicago Board Options Exchange’s CBOE Volatility Index (the “VIX Index”), a commonly used measure of the stock market’s expectation of volatility based on

¹⁰⁴ See, for example, Stephens analyst report on Apache, dated March 12, 2020 (“We believe the dividend cut is prudent based on current commodity outlook.”) and Credit Suisse analyst report on the E&P industry, dated March 12, 2020 (“Nine of the 33 E&Ps in our coverage have now officially announced spending/activity reductions this week[.]”).

¹⁰⁵ “The Oil Price Crash Puts Apache Corporation In A Tough Spot,” *Seeking Alpha*, March 16, 2020.

S&P 500 index options, peaked on March 16, 2020 at 83%, approximately 5 times its average value from February 23, 2018 to February 28, 2020.¹⁰⁶



94. Dr. Nye does not even discuss how the heightened market volatility in March 2020 would affect interpretations of his event study results, even though he appears to find that on every day around the March 16, 2020 alleged corrective disclosure, Apache's stock had a statistically significant price reaction. As discussed above, the test of the statistical significance of a price reaction is based on the range of normal expected daily variation in stock prices. When testing the statistical significance of the price reaction on a certain date, both Dr. Nye's event study model and the alternative event study model use an estimation period of a year before this date, thereby using the stock price volatility in the year before this date to estimate the range of normal expected daily variation in Apache's stock on this date. The Complaint attributes the movement in Apache's stock price during the two-day period from March 16 to March 17, 2020

¹⁰⁶ "Cboe VIX Index," Cboe, accessed at: https://www.cboe.com/tradable_products/vix/.

to the alleged corrective information. However, due to the heightened market volatility, price movements of Apache's stock around March 16, 2020 were substantially different from what would be expected given the company's stock price movements in the prior year, when market volatility was much lower. By not accounting for increased market volatility, both Dr. Nye's event study model and the alternative event study model appear to find statistically significant reactions around this time period even when there is no new company-specific news, demonstrating that these event study models are not applicable to the March 16, 2020 alleged corrective disclosure.

95. An analysis of the stock price movement of Apache and constituents of Dr. Nye's industry index, using Dr. Nye's event study model, shows that from March 12 to March 18, 2020,¹⁰⁷ the majority of companies appear to have statistically significant reactions even when there is no new company-specific news.¹⁰⁸ The table below shows that 64% of companies had a statistically significant price reaction on March 12 and 13, 73% on March 16, and 82% on March 17 and 18, 2020. Moreover, according to Dr. Nye's event study model, Apache's excess returns on every day from March 12 to March 18, 2020 were statistically significant at the 1% significance level, despite the fact that there was no Company-specific news from March 12 to March 18, 2020 except for Apache's March 12, 2020 announcement of a dividend cut, which was consistent with the E&P industry's capital expenditure cuts and was considered "prudent."¹⁰⁹ This further shows that the range of normal expected daily variation in stock prices during a period of low market volatility is not applicable to testing stock price movements during a period of heightened market volatility.

¹⁰⁷ From March 12 to March 18, 2020, Apache and all constituents of Dr. Nye's industry index constituted the S&P 500 Oil & Gas Exploration and Production Index.

¹⁰⁸ A review of news articles on Factiva on all 10 constituents of Dr. Nye's industry index and Apache from March 12, 2020 to March 18, 2020 indicates that news was primarily focused on capital expenditure cuts by E&P companies, an industry-wide occurrence.

¹⁰⁹ See, for example, Stephens analyst report on Apache, dated March 12, 2020 ("We believe the dividend cut is prudent based on current commodity outlook.") and Credit Suisse analyst report on the E&P industry, dated March 12, 2020 ("Nine of the 33 E&Ps in our coverage have now officially announced spending/activity reductions this week").

**Summary of Statistically Significant Price Reactions of
Apache and Constituents of Nye's Industry Index
From March 12, 2020 to March 18, 2020
Using Nye's Event Study Methodology**

Company	Statistically Significant Reaction?				
	3/12/20	3/13/20	3/16/20	3/17/20	3/18/20
(1)	(2)	(3)	(4)	(5)	(6)
1. Apache Corp	✓	✓	✓	✓	✓
2. Devon Energy Corporation	✓	✓	✓	✓	✓
3. EOG Resources, Inc.	✓	✓	✓	✓	✓
4. Noble Energy, Inc.			✓	✓	✓
5. Cabot Oil & Gas Corp ¹		✓		✓	
6. Pioneer Natural Resources Co.			✓	✓	✓
7. Marathon Oil Corporation	✓		✓	✓	✓
8. ConocoPhillips	✓		✓		✓
9. Hess Corporation	✓	✓	✓		✓
10. Concho Resources Inc.		✓		✓	
11. Diamondback Energy, Inc.	✓	✓		✓	✓
No of Cos. with Stat.Sig. Rxn:	7	7	8	9	9
% of Cos. with Stat.Sig. Rxn:	64%	64%	73%	82%	82%
Majority of Cos. with Stat.Sig. Rxn?:	Yes	Yes	Yes	Yes	Yes

Notes and Sources:

Data from "NYE_00000001.xlsx" and "NYE_00003032.xlsx."

Returns are predicted using daily percent returns of the companies as a function of the daily percent returns of S&P 500 Index and an industry index regressed over a control period that is the calendar year immediately preceding the date. Consistent with Dr. Nye's methodology, control period for March 16, 2020 and onwards is March 14, 2019 to March 13, 2020. The industry index for each constituent is calculated using Dr. Nye's methodology, by weighing the returns of all constituents except itself, by their market capitalization on the previous day.

Excess return's significance is based on the excess return's t-statistic, calculated as the daily excess return divided by the standard error of the regression over the control period. ✓ indicates significance at the 5% level.

Only companies that were a part of the S5OILP Index between March 12, 2020 to March 18, 2020 are considered.

¹ Cabot Oil & Gas Corporation merged with Cimarex Energy on October 1, 2021 to form Coterra Energy, Inc. Cabot's former ticker COG was replaced by CTRA.

96. Thus, in sum, the March 16, 2020 alleged corrective disclosure shows no price impact from the alleged misrepresentations for multiple reasons, including that i) nobody ever mentioned the *Seeking Alpha* article or tied it to any price drop (to the extent there was one) , ii)

there was no new news about Apache at all, let alone Alpine High, and iii) both Dr. Nye’s event study model and the alternative event study model are not applicable to test stock price reactions around this date, as a result of heightened market volatility due to Covid.

VIII. A BIG PICTURE ANALYSIS IS CONSISTENT WITH NO PRICE IMPACT DURING THE FOCUS PERIOD – THE MARKET DID NOT CHANGE ITS VIEW ABOUT ALPINE HIGH’S OIL AND WET GAS RESERVES, APACHE’S STOCK MOVED IN-LINE WITH THE E&P INDUSTRY, AND THE DOWNWARD CHANGES IN EXPECTATIONS ABOUT ALPINE HIGH WERE DRIVEN BY DETERIORATING COMMODITY PRICES

A. During the Focus Period, the market did not change its view about Alpine High’s oil and wet gas reserves or the mix

97. Plaintiffs allege that Apache concealed that “the Alpine High area was too heavy on unprofitable ‘dry’ gas and too light on valuable oil and ‘wet’ gas” and claim that the “truth” regarding the alleged misrepresentations was disclosed through a series of partial alleged corrective disclosures.¹¹⁰ However, Plaintiffs’ own Complaint shows that no new information about Alpine High’s oil and wet gas reserves or its mix was disclosed after February 23, 2018, the beginning of the Focus Period. In particular, as discussed in detail in Section VII.B above, an analysis of each alleged corrective disclosure during the Focus Period shows that there was no change in the market’s expectations about Alpine High’s reserves or the mix of oil and wet gas vs. dry gas. Instead, the Company disclosed a deferral of gas production at Alpine High, which was expected by the market by the time the announcement was made given the weak commodity price outlook.

98. Consistent with this lack of new information, analysts’ estimates of the quantity of oil and wet gas reserves at Alpine High and its mix were essentially unchanged during the Focus Period.¹¹¹ For example, analysts at Credit Suisse estimated Alpine High’s “unbooked

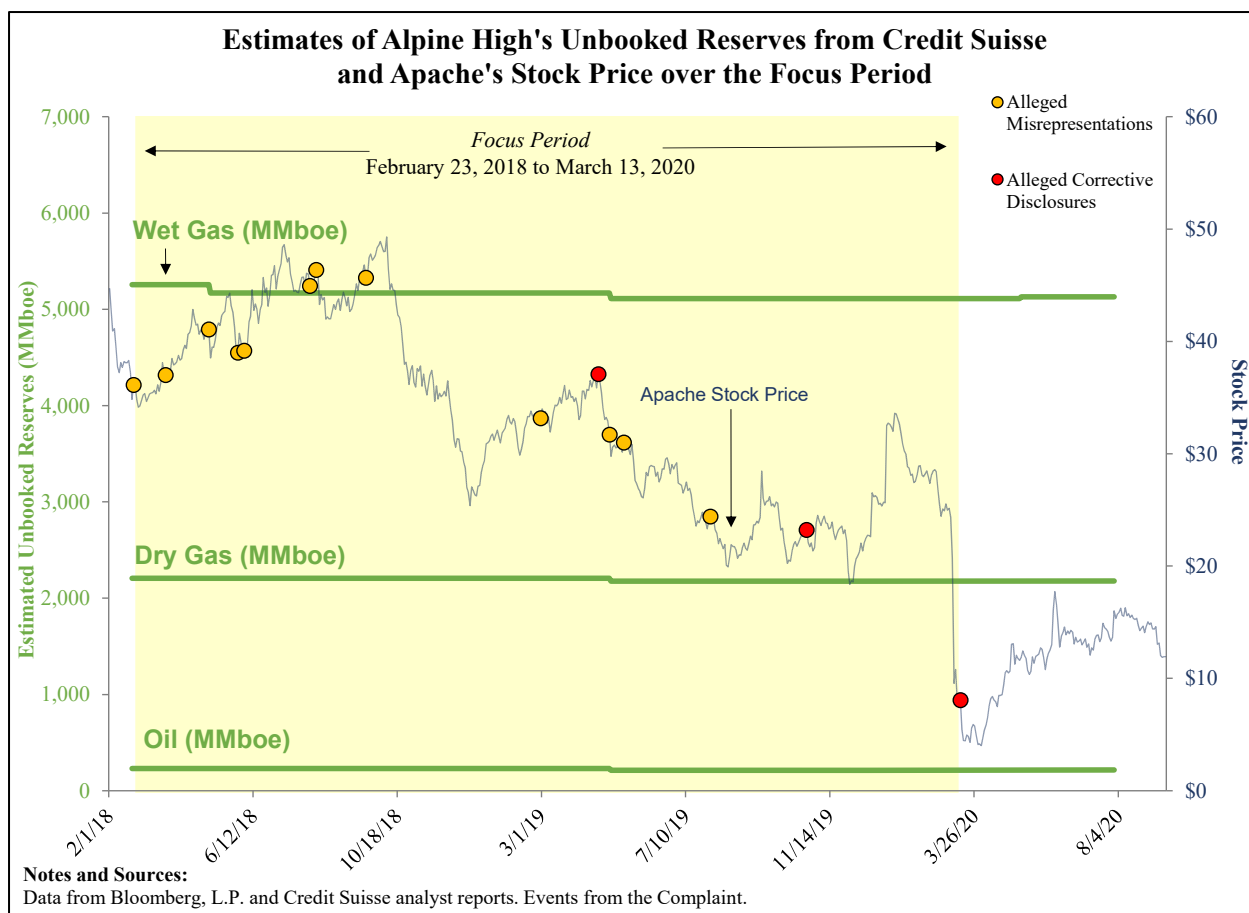
¹¹⁰ Complaint, ¶¶4, 303, 319.

¹¹¹ Note that analysts at Cowen estimated Alpine High’s wet gas, oil, and dry gas “risk potential” throughout the Focus Period. According to Cowen analysts, “risk potential” is the estimated potential quantity of resources in a play accounting for the development risk and commercial success probability and reflects the commodity price outlook. While Cowen’s estimates of the “risk potential” at Alpine High generally decreased during the Focus Period, this change was due to the change in commodity prices, as Cowen analysts did not associate the changes

reserves” of oil, wet gas, and dry gas during the Focus Period. Credit Suisse estimated “unbooked reserves” of numerous E&P companies’ plays to reflect the quantity of reserves in a play that are possible and probable, but not proven.¹¹² As summarized in the chart below, Credit Suisse essentially did not change their estimates of Alpine High’s “unbooked reserves” of oil, wet gas, and dry gas or its mix after any of the alleged misrepresentations or alleged corrective disclosures during the Focus Period. As shown in the chart, throughout the Focus Period, Credit Suisse analysts estimated that Alpine High had approximately 5200MMboe (million barrels of oil equivalent) of unbooked wet gas reserves, approximately 2200MMboe of unbooked dry gas reserves, and slightly more than 200MMboe of oil reserves, implying that the estimated wet gas, dry gas, and oil ratios of the unbooked reserves were around 68%, 29%, and 3% respectively. Further, after the end of the alleged Class Period and Focus Period, Credit Suisse continued to maintain essentially the same reserve estimates and mix for Alpine High. Thus, during the Focus Period, Credit Suisse analysts did not change their estimates of the quantity and mix of Alpine High reserves after any of the alleged misrepresentations or alleged corrective disclosures.

in their “risk potential” estimates to any alleged corrective events or Alpine High’s lack of oil and wet gas reserves. Moreover, during the Focus Period, there was essentially no change in Cowen’s estimates of the mix of oil, wet gas, and dry gas in Alpine High’s “risk potential.” Based on information from David Deckelbaum and Gabe Daoud, Managing Directors of Sustainability & Energy Transition at Cowen and part of the analyst team covering Apache.

¹¹² Based on information from William Featherston, Americas Director of Securities Research at Credit Suisse and part of the analyst team covering Apache. “Proved reserves” are estimated reserves where there is at least a 90% probability that quantities recovered will equal or exceed the estimate. “Probable reserves” are those reserves where there is at least a 50% probability that quantities recovered will equal or exceed the estimate. “Possible reserves” are those reserves where there is at least a 10% probability that quantities recovered will equal or exceed the estimate. See, “Petroleum Reserves Definitions [1997 Archive],” *Society of Petroleum Engineers*, accessed at: <https://www.spe.org/en/industry/petroleum-reserves-definitions/>. See, also, for example, Credit Suisse analyst report on Cimarex Energy Co., dated June 1, 2017.



99. In addition, throughout the Focus Period, analysts at Credit Suisse repeatedly described Alpine High as a “gas-rich” play and estimated that Alpine High had over 4,000 unbooked drilling locations.¹¹³ For example, in its October 31, 2019 analyst report, Credit Suisse stated that Apache’s Alpine High acreage was “primarily in the wet gas play” and that there were an estimated “4,000 unbooked drilling locations:”

APA holds a total of ~300,000 net acres in the Alpine High (primarily in the wet gas play), which we estimate adds >4,000 net unbooked drilling locations and >7 BBoe of net resource potential[.] [Credit Suisse, 10/31/19]

¹¹³ The last Credit Suisse analyst report issued during the Focus Period that commented on Alpine High’s reserve quantity or mix was on February 27, 2020. See, for example, Credit Suisse analyst report, dated May 3, 2018 (“However, this growth is primarily attributable to its production from the nascent, gas-rich Alpine High play in the Delaware Basin.”), Credit Suisse analyst report, dated November 1, 2018 (“Longer-term growth underpinned by gas/NGL-weighted Alpine High play,”), and Credit Suisse analyst report, dated February 27, 2020 (“[I]n the Alpine High (primarily in the wet gas play),”).

Credit Suisse stated substantially similar information in analyst reports issued on November 1, 2018, February 28, 2019, May 2, 2019, August 1, 2019, October 31, 2019, and February 27, 2020.

100. Similarly, a systematic review of analyst reports indicates that no analysts changed their understanding about Alpine High's quantity of wet gas and oil reserves or its oil and wet gas vs. dry gas reserve mix during the Focus Period. In particular, a systematic review of commentary of analyst reports issued after the alleged misrepresentations and alleged corrective disclosures during the Focus Period found no analyst discussion regarding any allegedly corrective information about the quantity or mix of Alpine High's reserves.¹¹⁴ Instead, analysts repeatedly characterized Alpine High as a *gas-weighted, NGL-rich* play during the Focus Period.

101. The table below summarizes a few examples of analysts' consistent commentary on the quantity and mix of Alpine High's reserves during the Focus Period. As shown in the table, during the Focus Period, analysts at Bank of America consistently described Alpine High's as a "gas play," JP Morgan analysts repeatedly commented on the "gassier mix" of Alpine High, and Morgan Stanley and MUFG analysts repeatedly characterized Alpine High as "NGL-rich." Further, UBS analysts described Alpine High as "gas-weighted" early in the Focus Period in March 2018, consistently stated that Alpine High "predominantly produced NGL and natural gas" more than a year later in August 2019 and continued to estimate that Alpine High had more than 3,500 wet gas drilling locations in December 2019, close to the end of the Focus Period.

Period	Bank of America	JP Morgan	Morgan Stanley	MUFG	UBS
<i>Focus Period Start</i>					
2/23/18 - 4/22/19	8/2/18: Adj. production of 390 mboepd topped guidance of 383 mboepd on strong US output which at 255.5 mboepd beat 248 mboepd guidance, but mainly gas in the Alpine high	3/12/18: [T]he company's growth will be driven by the gassier mix of Alpine High. 4/27/18: [T]he company's growth will be driven by the gassier mix of Alpine High.	8/2/18: Despite strong Alpine High guidance the gassy product on profile screens poorly relative to our bearish long-term view of gas.	2/26/18: Going into 2018, production looks poised to benefit from these investments with particular focus being paid to the Alpine High's NGL-rich 340,000 net acres.	3/6/18: While we believe that Alpine High can drive ~7% per annum companywide growth in 2018-2020, the growth is gas weighted causing APA's cash flow per debt adjusted shares to lag peers.

¹¹⁴ Based on available analyst reports from Refinitiv Eikon and the Company.

Period	Bank of America	JP Morgan	Morgan Stanley	MUFG	UBS
		<u>6/13/18</u> : Repeat <u>7/23/18</u> : Repeat <u>8/20/18</u> : Repeat <u>10/19/18</u> : Repeat <u>11/19/18</u> : Repeat <u>2/27/19</u> : Repeat			<u>5/2/18</u> : Repeat
<i>April 23, 2019 Alleged Corrective Disclosure</i>					
4/23/19 - 10/24/19	<u>10/18/19</u> : Our principal argument has been anchored on a challenged macro view on US natural gas and what has been APA management's wholesale pivot to the Alpine high gas play as the principal driver of its growth outlook. <u>10/22/19</u> : Repeat	<u>4/29/19</u> : [T]he company's growth will be driven by the gassier mix of Alpine High. <u>7/12/19</u> : Repeat <u>7/22/19</u> : Repeat <u>8/22/19</u> : Repeat <u>10/14/19</u> : Repeat	No commentary on reserve quantity/mix.	<u>7/19/19</u> : The company has a fair amount of geographic diversity and has historically been an oil producer. Its focus on Alpine High exposes the equity to greater commodity risk as it is more of a NGL play. <u>8/2/19</u> : Repeat	<u>8/5/19</u> : Base (US\$21): Our base case assumes the UBS price deck. Alpine High continues to produce NGLs and natural gas, location of production continues to drive low price realizations.
<i>October 25, 2019 Alleged Corrective Disclosure</i>					
10/25/19 - 3/13/20 (end of Focus Period)	<u>10/31/19</u> : Our principal argument has been anchored on a challenged macro view on US natural gas and what has been APA management's wholesale pivot to the Alpine high gas play as the principal driver of its growth outlook. <u>12/9/19</u> : Repeat	No commentary on reserve quantity/mix.	<u>10/29/19</u> : APA placed a large portfolio emphasis on Alpine High, an NGL rich, gas weighted play located in the southwest portion of Reeves county in the Delaware section of the Permian Basin. <u>1/8/20</u> : Repeat	<u>10/28/19</u> : The company has a fair amount of geographic diversity and has historically been an oil producer. Its focus on Alpine High exposes the equity to greater commodity risk as it is more of a NGL play.	<u>12/18/19</u> : Figure 9 of the report shows UBS estimates of more than 3,500 wet gas drilling locations at Alpine High.

Period	Bank of America	JP Morgan	Morgan Stanley	MUFG	UBS
	<u>2/26/20:</u> Investment Rationale Significant discovery offshore Suriname resets the investment case for Apache from Alpine High natural gas leverage to deepwater oil exploration and development.				
<i>Focus Period End</i> <i>March 16, 2020 Alleged Corrective Disclosure</i>					

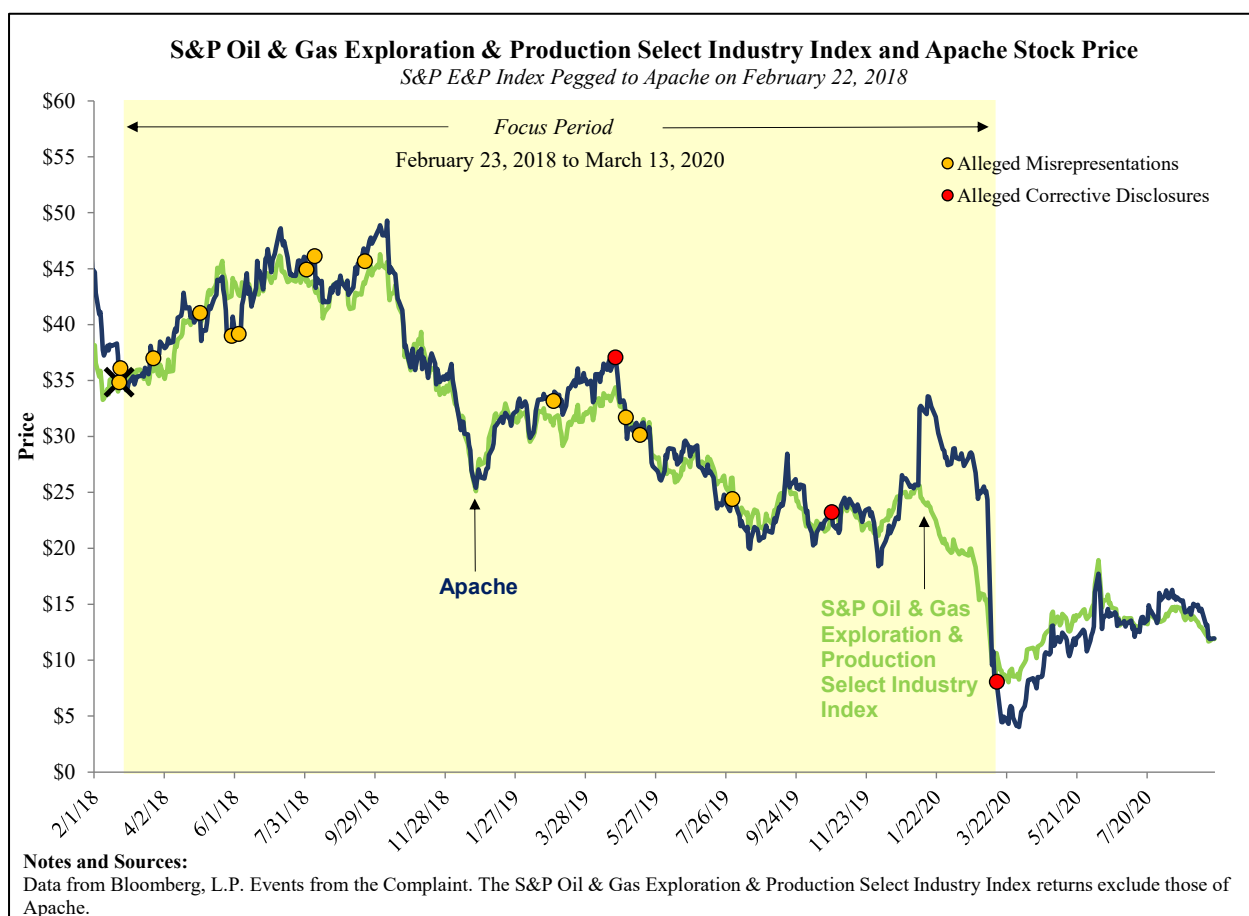
102. In sum, as demonstrated by a systematic review of analysts’ estimates and descriptions of the quantity and mix of Alpine High’s reserves, there was no change in the market’s expectations about Alpine High’s reserves or the mix of oil and wet gas vs. dry gas. Instead, throughout the Focus Period, analysts maintained their view that Alpine High was a gas-weighted, NGL-rich play.

B. Instead, Apache’s stock moved in-line with the oil and gas exploration and production industry

103. Plaintiffs claim that the alleged misrepresentations “created and/or maintained artificial inflation in the price of Apache common stock” and that when the truth “gradually became apparent to the market, the price of Apache common stock fell precipitously,” as the alleged inflation “dissipated.”¹¹⁵ However, as shown above in Sections VII.B and VIII.A, during the Focus Period, there was no price reaction from any allegedly corrective information and no change in the market’s expectations about Alpine High’s reserves or the mix of oil and wet gas vs. dry gas. Instead, Apache’s stock moved in-line with the E&P industry during the Focus Period.

¹¹⁵ Complaint, ¶301.

104. For example, Apache's stock moved in-line with the S&P E&P Index during the Focus Period. The S&P E&P Index is comprised of all stocks in the oil and gas exploration and production sub-industry according to Global Industry Classification Standard ("GICS").¹¹⁶ During the Focus Period, Apache was a constituent of this index, with its weight in the index ranging from approximately 2% to 4%.¹¹⁷ As shown in the graph below, Apache's stock price and the S&P E&P Index (excluding Apache) moved in tandem from February 23, 2018, the beginning of the Focus Period, through the end of the alleged Class Period, both increasing through 3Q18 and then decreasing through the end of the Focus Period.



105. Moreover, Apache's stock price also moved in-line with oil prices during the Focus Period. As discussed earlier in Section VII.B.3, throughout the Focus Period, oil made up

¹¹⁶ "S&P Oil & Gas Exploration & Production Select Industry Index Factsheet," *S&P Dow Jones Indices*, as of April 28, 2023.

¹¹⁷ Based on data from Bloomberg, L.P.

around 80% of Apache's production revenue, with around 40% coming from the U.S. and the rest from Egypt and the North Sea, thus exposing Apache to both international and U.S. oil pricing.¹¹⁸ In particular, at the end of the Focus Period in March 2020, Apache's stock price, Brent Crude Oil spot price, and WTI Crude Oil spot price plummeted in tandem, as the Covid pandemic caused a series of events that resulted in an oil price collapse.

106. As will be discussed and shown in Section VIII.C, Apache's stock price also moved in-line with prices of NGL and natural gas – two important outputs of Alpine High – during the Focus Period.

C. Moreover, the downward changes in expectations about Alpine High were driven by deteriorating commodity prices

107. During the Focus Period, contrary to Plaintiffs' claims, downward changes in expectations of Alpine High, including decisions to reduce production and drilling, were due to changes in commodity prices during the Focus Period and were not in relation to any new understanding of the reserves or reserve mix at Alpine High.

108. During the Focus Period, analysts repeatedly explained that Apache's decisions to defer and/or reduce production and drilling at Alpine High were responses to generally weakening commodity prices, particularly the weakening Waha Hub natural gas prices and NGL prices.

109. The Complaint outlines three announcements of reduced or deferred Alpine High activity during the Focus Period: April 23, 2019, October 31, 2019, and February 26, 2020.¹¹⁹ However, after *all* of these announcements, neither the Company nor any analyst associated the Company's decision to reduce Alpine High activity with the alleged lack of oil and wet gas reserves or the mix of oil and wet gas vs. dry gas. Instead, both the Company and analysts attributed the reduced or deferred Alpine High activity announced on those dates to the deterioration in commodity prices, and, throughout the Focus Period, analysts consistently considered Alpine High to be rich in natural gas and NGL.¹²⁰

¹¹⁸ From 2018 to 2020, approximately 80% of Apache's total production revenue was made up of oil production. Apache FY20 Form 10-K, filed February 26, 2021, p. 36.

¹¹⁹ Complaint, ¶¶104, 106, 310-311.

¹²⁰ See, Section VIII.A.

110. As discussed in detail in Section VII.B.1. above, after the April 23, 2019 announcement of a deferral of Alpine High activity, both the Company and analysts attributed the deferred activity to “extremely low” regional gas prices. In fact, analysts noted that the market expected the announcement given the “extremely low” prices.

111. On October 31, 2019, in its 3Q19 conference call, Apache announced that it had reduced drilling activity at Alpine High, as a result of continued weakness in gas and NGL pricing.¹²¹ However, this was not a surprise to the market as analysts indicated that the reduction in activity was expected given the weak gas prices and some analysts had even suggested in the weeks before October 31, 2019 that Apache reduce activity in Alpine High given the weak commodity price outlook.

112. For example, more than one week before October 31, 2019, analysts at Barclays indicated that commodity prices were making Alpine High “uneconomic” and suggested that Alpine High activity should be reduced if NGL prices could not recover.

Based on current commodity prices, we estimate that APA’s cryogenic processing units in the Alpine High are uneconomic. [...] Our analysis suggests that absent a recovery in NGL prices, Alpine High activity needs to be cut in half in 2020, resulting in a YoY production decline. Alpine High activity needs to drop to 2.5 rigs to break even on the cryo processing plants. [Barclays, 10/21/19]

113. After Apache’s announcement of reduced Alpine High activity on October 31, 2019, many analysts stated that the news was expected due to prolonged weakness in gas and NGL prices. For example:

As we had anticipated, current commodity pricing dictates an Alpine High slowdown into 2020. APA has reduced Alpine High drilling activity to 2 rigs (from an average of 5 rigs in 3Q) and is deferring some 4Q completions into 2020. [Cowen, 10/30/2019, emphasis added]

As previously signaled by the company, APA has moderated activity at Alpine High to 2 rigs vs. 5 rigs in 3Q19 and has decided to defer completions into 2020, which will negatively impact the 4Q19 Alpine High guide by 5%. [JP Morgan, 10/31/2019, emphasis added]

In light of prolonged weakness in gas and NGL pricing of late, APA reduced drilling activity in the Alpine High to 2 rigs (vs. a 3Q average of 5) and plans to defer some completions into FY20. [Piper, 10/30/19, emphasis added]

¹²¹ Complaint, ¶104. See also, Apache 3Q19 earnings conference call, October 31, 2019 and “Apache Corporation Announces Third-Quarter 2019 Financial and Operational Results,” *Apache Press Release*, October 30, 2019.

114. On February 26, 2020, in its 4Q19 earnings press release, Apache announced that as of the end of 2019, “there were no rigs drilling at Alpine High.”¹²² In the same press release, Apache indicated that it was moving away from Alpine High due to the “deteriorating natural gas and NGL prices.”¹²³ In its earnings call on February 27, the Company further discussed the impact that the “natural gas and NGL collapse” had on the “economic competitiveness” of Alpine High and that “gas NGL prices fell to less than half of the prices” that the Company had anticipated.¹²⁴

115. Moreover, analysts indicated that Apache’s pivot away from Alpine High was expected given the low gas prices.¹²⁵ For example:

As anticipated, APA is completing its pivot away from Alpine High (zero rigs in 2020 and potential volume curtailment depending on Waha prices) as the company prepares for increased activity in Suriname. [Barclays, 2/26/20, emphasis added]

APA noted it is lowering spend in Alpine High given challenging NG and NGL pricing (**had to be expected**) and we note if Waha stays weak production could be curtailed. [UBS, 2/26/20, emphasis added]

Apache shares have bucked the market disaster trend this week given investors’ conventional production growth preference along with steady US baseline business. **The company has smartly moved on from Alpine High** with renewed focus in Suriname, Egypt, North Sea and the Permian along with potential exploration projects. [...] **While Alpine High demonstrated negative results for Apache due to low natural gas/NGL prices** and underperformance from density tests, we believe the company’s decision to drop to no activity in the play is the right one to make in order to better focus on the opportunities at hand. [Truist Securities, 2/27/20, emphasis added]

116. In sum, after all three announcements, neither the Company nor any analyst associated the Company’s decision to reduce Alpine High activity with the alleged lack of oil and wet gas reserves or the mix of oil and wet gas vs. dry gas. Instead, both the Company and

¹²² Complaint, ¶106. See also, “Apache Corporation Announces Fourth-Quarter and Full-Year 2019 Financial and Operational Results,” *Apache Press Release*, February 26, 2020.

¹²³ “Apache Corporation Announces Fourth-Quarter and Full-Year 2019 Financial and Operational Results,” *Apache Press Release*, February 26, 2020.

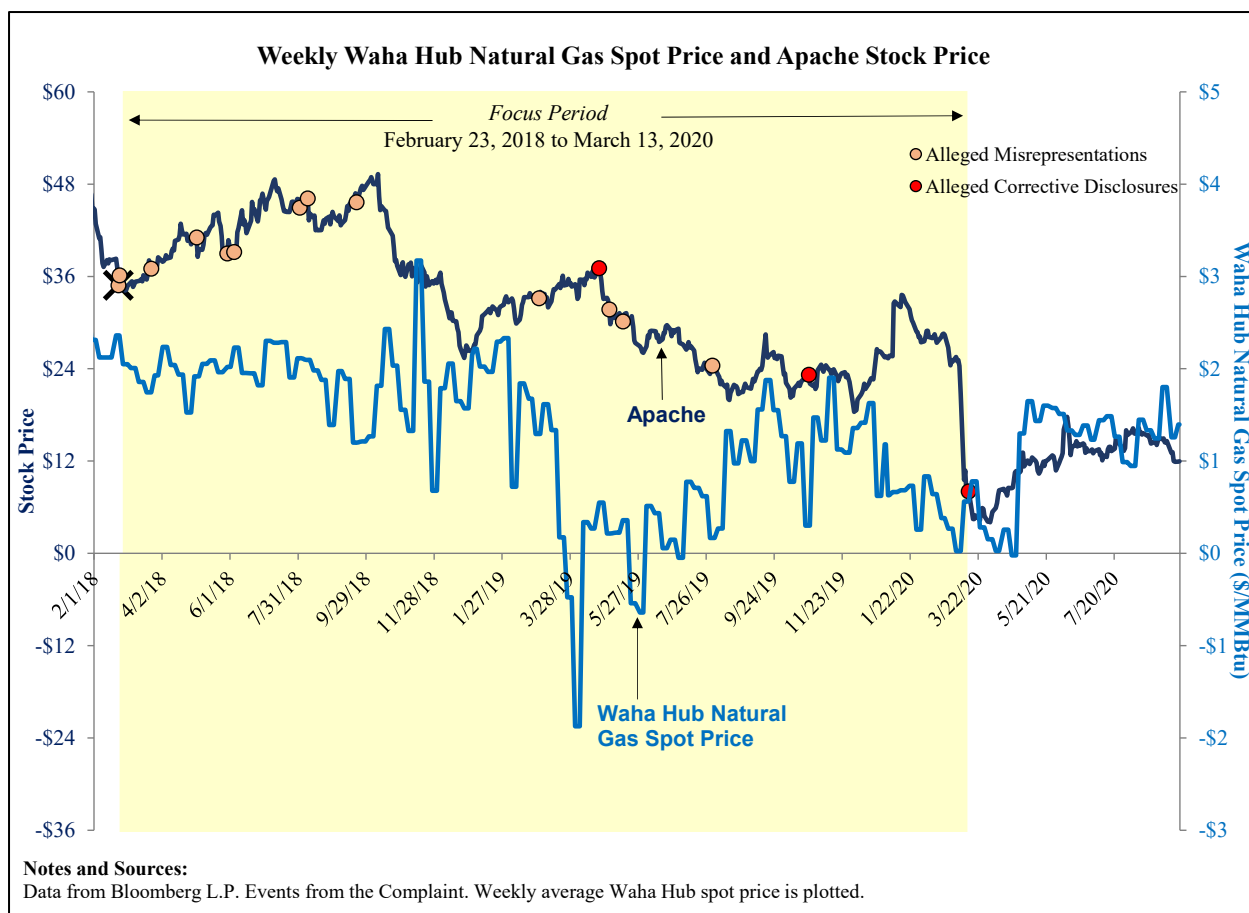
¹²⁴ Apache 4Q19 and FY19 earnings conference call, February 27, 2020.

¹²⁵ By January 2020, the market was already aware that there were no rigs drilling at Alpine High. See, for example, JP Morgan analyst report, dated January 22, 2020 (“Alpine High: In 4Q19, we expect APA to bring online 27 TILs and average 2 drilling rigs. We are modeling 2 rigs in 2020 to support 40 TILs next year, although we note that the company’s rigcount has recently gone to zero.”).

analysts attributed the reduced or deferred Alpine High activity announced on those dates to the deterioration in commodity prices.

117. As discussed in Section VIII.B, Apache's stock moved in-line with the E&P industry and oil prices during the Focus Period. Apache's stock price also moved in-line with regional natural gas and NGL prices during this period. In particular, the chart below shows the movements of Apache's stock price and the Waha Hub natural gas spot price, the pricing benchmark for natural gas produced in the Permian region, including Alpine High.¹²⁶ As shown in the chart, Apache's stock price and the Waha Hub natural gas spot price both generally declined during the Focus Period. In particular, as discussed in Section VII.B.1, the Waha Hub natural gas spot price became negative in March 2019 after unplanned pipeline failures. In the following four months, the Waha Hub natural gas spot price stayed around zero dollars, while Apache's stock continued to decline. Similarly, around the end of the Focus Period, the Waha Hub natural gas spot price was again close to zero dollars and Apache's stock also plummeted, amid heightened market volatility due to the Covid pandemic.

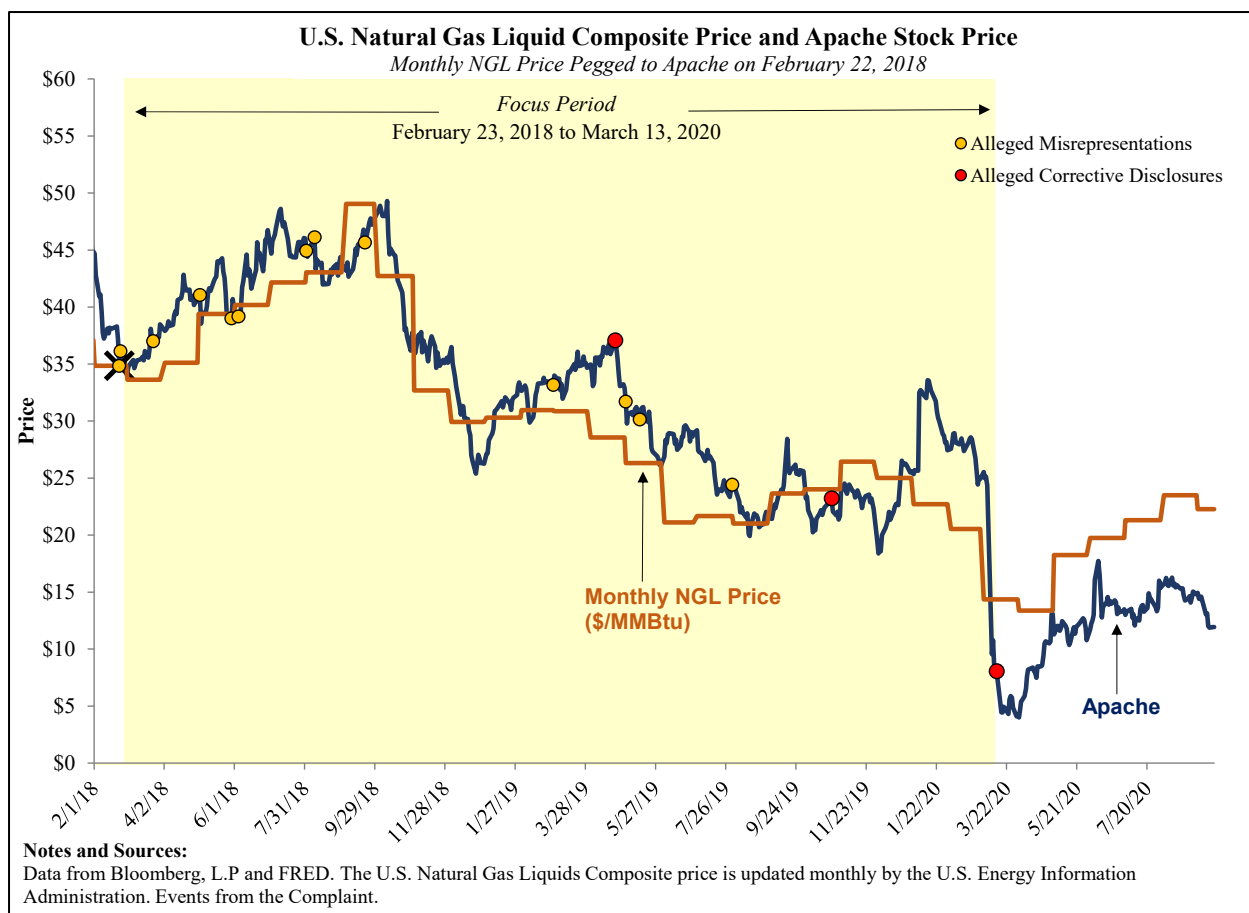
¹²⁶ See, for example, "Waha Hub spot gas' basis spread blows out on PHP maintenance," *S&P Global Commodity Insights*, May 2, 2022.



118. Consistent with the discussion of analyst commentary in Section VII.B., prices of NGL, another important product for Alpine High, generally declined during the Focus Period. In particular, the chart below shows the movements of Apache's stock price and the monthly U.S. natural gas liquid composite price (the "NGL composite price") from the Federal Reserve Bank of St. Louis. NGLs refer to a category of hydrocarbons that have similar chemical composition, including ethane, propane, and butane.¹²⁷ Hydrocarbon products in the NGL category are traded individually and thus have their own price. The NGL composite price is a monthly updated pricing proxy that reflects the spot prices and production volumes of all NGL products.¹²⁸ As shown in the chart, Apache's stock price moved in-line with the NGL composite price during the Focus Period, increasing during 2Q18 and 3Q18, decreasing between 4Q18 and 2Q19, and decreasing in March 2020 with the start of the Covid pandemic.

¹²⁷ "What are natural gas liquids and how are they used?" *U.S. Energy Information Administration*, April 20, 2012.

¹²⁸ "Definitions, Sources and Explanatory Notes," *U.S. Energy Information Administration*.



119. Further, Apache's stock price moved in-line with Cimarex Energy Co. ("Cimarex"), another E&P company that was heavily exposed to Waha Hub natural gas prices and NGL prices.¹²⁹ For example, according to a Piper Sandler E&P industry report, Cimarex's stock was a "solid proxy for investor sentiment/concern on Waha pricing."¹³⁰ As another example, a Barclays E&P industry report stated that Apache and Cimarex "ha[d] the highest exposure to NGLs among large caps."¹³¹ During the Focus Period, Cimarex was a member of a "designated Peer Group" that Apache used to measure total shareholder returns to determine employee stock awards.¹³² Cimarex was also a member of Dr. Nye's industry index for the

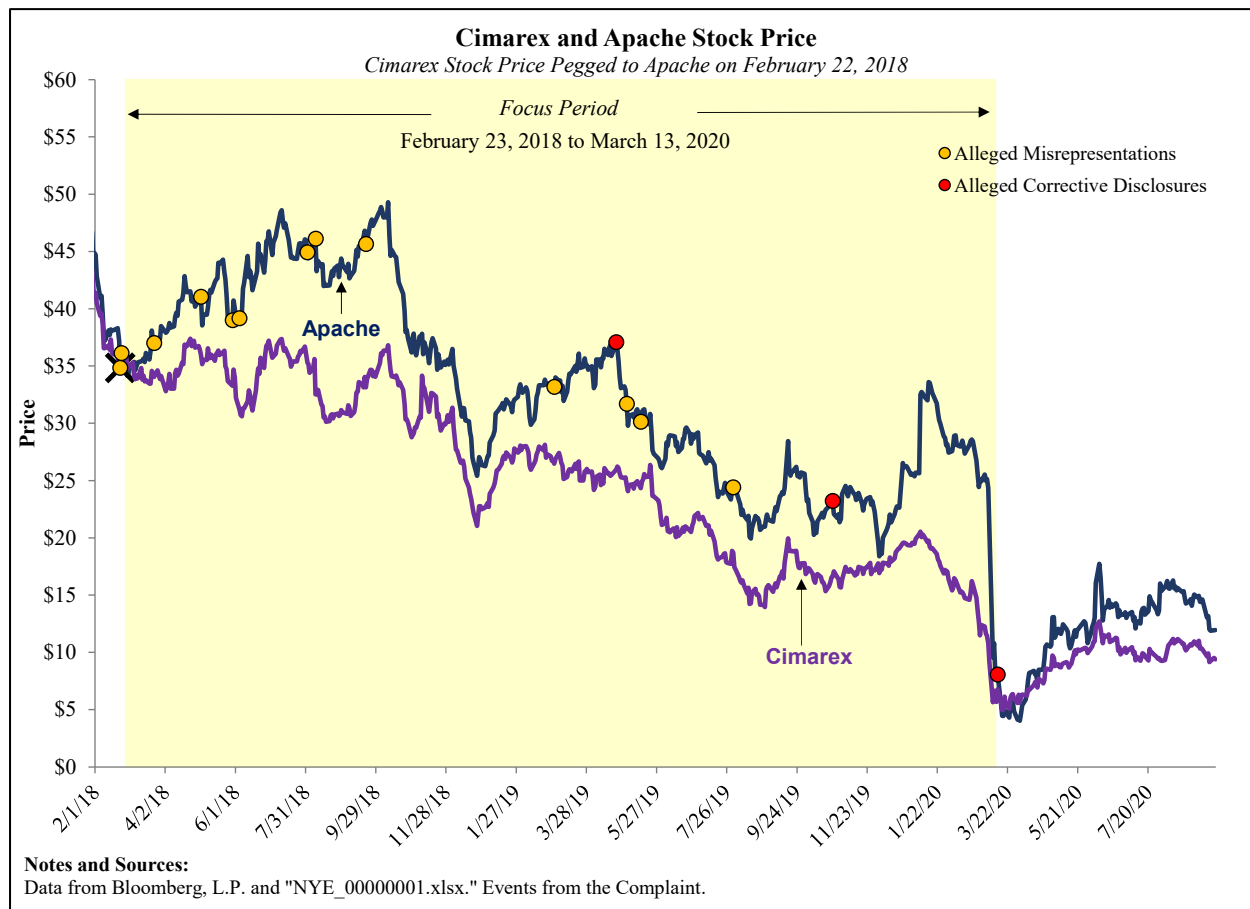
¹²⁹ Cimarex Energy merged with Cabot Oil & Gas Corporation in October 2021 to form Coterra Energy Inc. See, Cimarex Form 8-K, filed October 1, 2021.

¹³⁰ Piper Sandler analyst report, dated June 27, 2019. See also, Evercore analyst report, dated August 19, 2018 ("[T]he stock has become the epicenter of fears surrounding [natural gas] bottlenecks in the Delaware basin despite efforts to secure firm sales agreements and hedge local basis.")

¹³¹ Barclays analyst report, dated July 9, 2019.

¹³² See, for example, Apache FY20 Form 10-K, filed February 26, 2021, Schedule B and Apache FY19 Form 10-K, filed February 28, 2020, Schedule B.

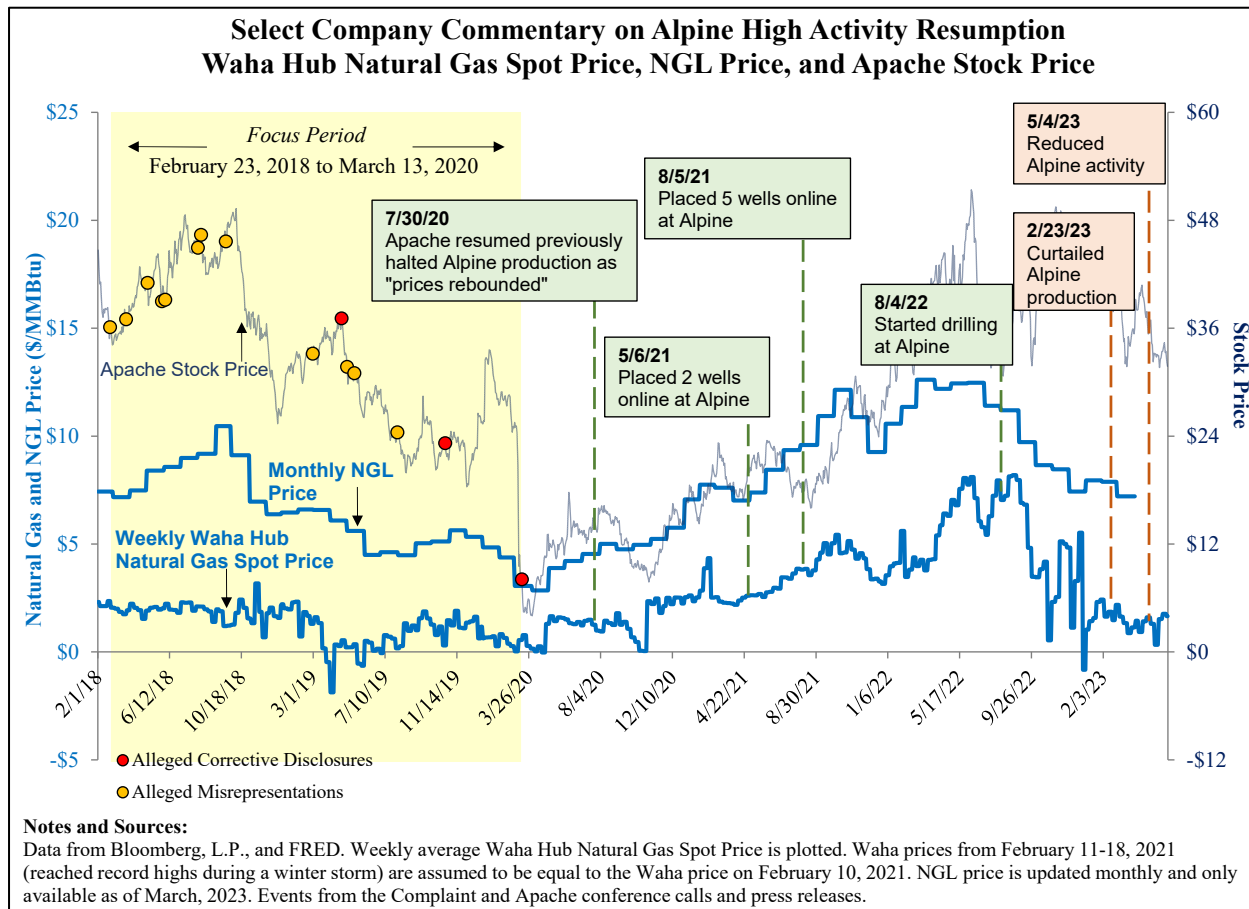
majority of the Focus Period. The chart below shows the movements of Apache's stock and Cimarex's stock during the Focus Period. Both Apache's stock and Cimarex's stock generally declined during the Focus Period, with Cimarex's stock trading below Apache's stock for the majority of the period.¹³³ Both stocks showed a similar rate of decline in 2Q and 3Q19, following the "collapse" of Waha Hub natural gas prices and NGL prices discussed in Section VII.B.1.



120. As detailed below, strong evidence that there is no price impact and no link between the alleged misrepresentations and Apache's stock price during the Focus Period is the fact that when commodity prices recovered *after* the Focus Period ended, Apache resumed its previously curtailed production and drilling at Alpine High.

¹³³ During the Focus Period, Cimarex had a similar share of production revenue from natural gas and an almost doubled share from NGL compared to Apache. See, for example, Cimarex FY20 Form 10-K, filed February 23, 2021, p. 43.

121. The chart below outlines Company commentary regarding the resumption of activity at Alpine High, along with the Waha Hub Natural Gas Spot Price and the NGL Composite Price.



122. Specifically, as shown above, in July 2020, after the end of the Focus Period, the Company announced that it had returned previously curtailed volumes at Alpine High to production “as prices rebounded.”¹³⁴ As the trends of NGL and natural gas price recoveries continued in May 2021, Apache announced that it had placed 2 wells online at Alpine High.¹³⁵ In the fall of 2021, Apache indicated that it would “evaluate” restarting drilling at Alpine High

¹³⁴ Apache 2Q20 earnings conference call, July 30, 2020 and “Apache Corporation Announces Second-Quarter 2020 Financial and Operational Results,” *Apache Press Release*, July 29, 2020.

¹³⁵ Apache 1Q21 earnings conference call, May 6, 2021.

given the improvement in gas and NGL prices.¹³⁶ Analysts also linked the restart of drilling at Alpine High to gas and NGL prices. For example, Bank of America stated:

Frankly, we do not see that [Alpine High spending] as that much of a hurdle given current NGL & gas prices and would increase utilization on the existing Alpine High facilities. [Bank of America, 10/21/21]

123. In March 2022, Apache announced that drilling would resume at Alpine High later in the year.¹³⁷ In August 2022, Apache resumed drilling at Alpine High.¹³⁸ Analysts commented on Apache's drilling resumption at Alpine High, noting the improved gas and NGL prices. For example, Evercore noted:

APA will head back to Alpine High in the 2H to drill a pad which at these natural gas and NGL prices we have to believe far exceed the return aspirations the first time around. [Evercore, 8/3/22]

124. Similarly, a news article commented that Apache was "back to work" on "strong natural gas pricing and demand":

On strong natural gas pricing and demand, APA Corp. is back to work drilling its first pad since 2019 in the Alpine High in the Permian Basin of West Texas. ["APA Drilling First Pad Since 2019 in Permian's Natural Gas-Rich Alpine High as Prices, Demand Soar," *NGI's All News Access*, 11/8/22]

125. In February 2023, as gas prices declined, Apache announced that it had curtailed Alpine High production as a result of Waha price volatility.¹³⁹ In May 2023, 10 months after Apache resumed drilling at Alpine High, the Company announced that it would reduce drilling

¹³⁶ Apache 2Q21 earnings conference call, August 5, 2021 ("But we look at that all of the time, certainly with gas and NGL prices improving in the recent months and could continue to improve. That will be something that we will evaluate. And as we finish up this year and roll into next year, we'll get into the actual capital program for 2022, which very well could include some capital for Alpine High.").

¹³⁷ "APA Corporation Closes Two Transactions; Receives \$1 Billion of Proceeds," *GlobeNewswire*, March 14, 2022 ("The transaction follows the combination of Altus Midstream and BCP Raptor Holdco LP that formed Kinetik and was completed in late February. Within the next 24 months, Apache will invest a minimum of \$100 million for new well drilling and completion activity at the Alpine High play in the Delaware Basin, where Kinetik has exclusive gas and NGL gathering and processing rights."). See also, Apache 1Q22 earnings conference call, May 5, 2022 ("Following this, the rig will mobilize to Alpine High to resume gas and NGL development drilling in the summer.").


¹³⁸ Apache 2Q22 earnings conference call, August 4, 2022 ("In the U.S., we continue to run a steady 2-rig program in the Southern Midland Basin and recently initiated drilling at Alpine High with a third rig.").

¹³⁹ Apache 4Q22 earnings conference call, February 23, 2023 ("Our curtailments [at Alpine High] earlier in the year were relatively small. But when Waha -- Waha has had a lot of volatility. So, as we get down to the low Waha basis and sometimes it's going negative. So, we're making those decisions daily and weekly.").

activity due to “the prevailing weakness in Waha natural gas prices.”¹⁴⁰ A *Bloomberg* article noted that, once again, reducing drilling activity at Alpine High was “prudent” given weak Waha Hub natural gas prices:

Post-1Q Earnings Outlook: Lowering its upstream capital budget this year -- as it reduces its dry natural gas drilling activity at Alpine High -- is prudent for APA with weakness in its key Waha hub price. [“Waha Price to Hurt APA Permian Gas Activity: Earnings Outlook,” *Bloomberg*, 5/5/23]

126. Thus, the downward changes in expectations about Alpine High, including production and drilling decisions, were driven by changes in commodity prices and not in relation to any new understanding of the reserves or reserve mix at Alpine High, both during and after the Focus Period.


Lucy P. Allen

¹⁴⁰ Apache 1Q23 earnings conference call, May 4, 2023.



Lucy P. Allen
Senior Managing Director

NERA Economic Consulting
1166 Avenue of the Americas
New York, New York 10036
Tel: +1 212 345 5913 Fax: +1 212 345 4650
lucy.allen@nera.com
www.nera.com

Appendix A

LUCY P. ALLEN SENIOR MANAGING DIRECTOR

Education

YALE UNIVERSITY

M.Phil., Economics, 1990

M.A., Economics, 1989

M.B.A., 1986

STANFORD UNIVERSITY

A.B., Human Biology, 1981

Professional Experience

1994-Present

National Economic Research Associates, Inc.

Senior Managing Director. Responsible for economic analysis in the areas of securities, finance and environmental and tort economics.

Managing Director (2016-2023).

Senior Vice President (2003-2016).

Vice President (1999-2003).

Senior Consultant (1994-1999).

1992-1993

Council of Economic Advisers, Executive Office of the President

Staff Economist. Provided economic analysis on regulatory and health care issues to Council Members and interagency groups. Shared responsibility for regulation and health care chapters of the *Economic Report of the President, 1993*. Working Group member of the President's National Health Care Reform Task Force.

1986-1988

1983-1984

Ayers, Whitmore & Company (General Management Consultants)

Senior Associate. Formulated marketing, organization, and overall business strategies including:

Plan to improve profitability of chemical process equipment manufacturer.

Merger analysis and integration plan of two equipment manufacturers.

Evaluation of Korean competition to a U.S. manufacturer.

Lucy P. Allen

Diagnostic survey for auto parts manufacturer on growth obstacles.
Marketing plan to increase international market share for major accounting firm.

Summer 1985

WNET/Channel Thirteen, Strategic Planning Department

Associate. Assisted in development of company's first long-term strategic plan. Analyzed relationship between programming and viewer support.

1981-1983

Arthur Andersen & Company

Consultant. Designed, programmed and installed management information systems. Participated in redesign/conversion of New York State's accounting system. Developed municipal bond fund management system, successfully marketed to brokers. Participated in President's Private Sector Survey on Cost Control (Grace Commission). Designed customized tracking and accounting system for shipping company.

Teaching

1989- 1992

Teaching Fellow, Yale University

Honors Econometrics

Intermediate Microeconomics

Competitive Strategies

Probability and Game Theory

Marketing Strategy

Economic Analysis

Publications

"Snapshot of Recent Trends in Asbestos Litigation: 2022 Update," (co-author), NERA Report, 2022.

"Snapshot of Recent Trends in Asbestos Litigation: 2021 Update," (co-author), NERA Report, 2021.

"The Short-Term Effect of Goodwill Impairment Announcements on Companies' Stock Prices" (co-author), *International Journal of Business, Accounting and Finance*, Volume 14, Number 2, Fall 2020.

"Snapshot of Recent Trends in Asbestos Litigation: 2020 Update," (co-author), NERA Report, 2020.

"Snapshot of Recent Trends in Asbestos Litigation: 2019 Update," (co-author), NERA Report, 2019.

"Snapshot of Recent Trends in Asbestos Litigation: 2018 Update," (co-author), NERA Report, 2018.

“Trends and the Economic Effect of Asbestos Bans and Decline in Asbestos Consumption and Production Worldwide,” (co-author), *International Journal of Environmental Research and Public Health*, 15(3), 531, 2018.

“Snapshot of Recent Trends in Asbestos Litigation: 2017 Update,” (co-author), NERA Report, 2017.

“Asbestos: Economic Assessment of Bans and Declining Production and Consumption,” World Health Organization, 2017.

“Snapshot of Recent Trends in Asbestos Litigation: 2016 Update,” (co-author), NERA Report, 2016.

“Snapshot of Recent Trends in Asbestos Litigation: 2015 Update,” (co-author), NERA Report, 2015.

“Snapshot of Recent Trends in Asbestos Litigation: 2014 Update,” (co-author), NERA Report, 2014.

“Snapshot of Recent Trends in Asbestos Litigation: 2013 Update,” (co-author), NERA Report, 2013.

“Asbestos Payments per Resolved Claim Increased 75% in the Past Year – Is This Increase as Dramatic as it Sounds? Snapshot of Recent Trends in Asbestos Litigation: 2012 Update,” (co-author), NERA Report, 2012.

“Snapshot of Recent Trends in Asbestos Litigation: 2011 Update,” (co-author), NERA White Paper, 2011.

“Snapshot of Recent Trends in Asbestos Litigation: 2010 Update,” (co-author), NERA White Paper, 2010.

“Settlement Trends and Tactics” presented at Securities Litigation During the Financial Crisis: Current Development & Strategies, hosted by the New York City Bar, New York, New York, 2009.

“Snapshot of Recent Trends in Asbestos Litigation,” (co-author), NERA White Paper, 2009.

“China Product Recalls: What’s at Stake and What’s Next,” (co-author), NERA Working Paper, 2008.

“Forecasting Product Liability by Understanding the Driving Forces,” (co-author), *The International Comparative Legal Guide to Product Liability*, 2006.

“Securities Litigation Reform: Problems and Progress,” *Viewpoint*, November 1999, Issue No. 2 (co-authored).

“Trends in Securities Litigation and the Impact of the PSLRA,” Class Actions & Derivative Suits, American Bar Association Litigation Section, Vol. 9, No. 3, Summer 1999 (co-authored).

“Random Taxes, Random Claims,” Regulation, Winter 1997, pp. 6-7 (co-authored).

Depositions & Testimony (4 years)

Deposition Testimony before the United States District Court for the Central District of California in *In re Prime Healthcare ERISA Litigation*, 2023.

Deposition Testimony before the United States District Court for the Southern District of Texas in *Delaware County Employees Retirement System v. Cabot Oil & Gas Corporation, et al.*, 2023.

Testimony and Deposition before the United States District Court for the District of Oregon in *Oregon Firearms Federation, Inc. et al. v. Tina Kotek et al.*, 2023.

Testimony and Depositions before the United States District Court for the Southern District of Texas, Houston Division in *Miriam Edwards, et al. v. McDermott International, Inc., et al.*, 2023.

Deposition Testimony before the United States District Court for the District of Harris County, Texas in *Boxer Property Management Corp. et al. v. Illinois Union Ins. Co. et al.*, 2022.

Testimony before the Supreme Court of the State of New York, County of New York, in *MUFG Union Bank, N.A. (f/k/a Union Bank, N.A.) v. Axos Bank (f/k/a Bank of Internet USA), et al.*, 2022.

Deposition Testimony before the United States District Court for the Eastern District of Virginia, in *Plymouth County Retirement System, et al. v. Evolent Health, Inc., et al.*, 2022.

Deposition Testimony before the United States District Court for the Northern District of Georgia, in *Public Employees’ Retirement System of Mississippi v. Mohawk Industries, Inc., et al.*, 2022.

Deposition Testimony before the United States District Court for the Southern District of New York, in *SEC v. AT&T, Inc. et al.*, 2022.

Deposition Testimony before the Superior Court of New Jersey, Hudson County, in *Oklahoma Firefighters Pension and Retirement System vs. Newell Brands Inc., et al.*, 2022.

Deposition Testimony before the United States District Court for the District of Pennsylvania, in *Allegheny County Employees, et al. v. Energy Transfer LP., et al.*, 2022.

Deposition Testimony before the United States District Court, District of Tennessee, in *St. Clair County Employees' Retirement System v. Smith & Acadia Healthcare Company, Inc., et al.*, 2022.

Deposition Testimony before the United States District Court, District of Colorado, in *Cipriano Correa, et al. v. Liberty Oilfield Services Inc., et al.*, 2022.

Deposition Testimony before the Superior Court of New Jersey, Hudson County, in *Oklahoma Firefighters Pension and Retirement System vs. Newell Brands Inc., et al.*, 2021.

Deposition Testimony before the Superior Court of New Jersey, Middlesex County, in *Dana Transport, Inc. et al., vs. PNC Bank et al.*, 2021.

Deposition Testimony before the United States District Court, Western District of North Carolina, in *Cheyenne Jones and Sara J. Gast v. Coca-Cola Consolidated Inc., et al.*, 2021.

Testimony and Deposition Testimony before the Court of Chancery of the State of Delaware in *Bardy Diagnostics Inc. v. Hill-Rom, Inc. et al.*, 2021.

Deposition Testimony before the United States Bankruptcy Court, Southern District of Texas, Houston Division, in *Natixis Funding Corporation v. Genon Mid-Atlantic, LLC*, 2021.

Testimony and Deposition Testimony before the United States District Court, Southern District of California, in *Miller et al. v. Becerra et al.*, 2021.

Deposition Testimony before the Court of Chancery of the State of Delaware in *Arkansas Teacher Retirement System v. Alon USA Energy, Inc., et al.*, 2021.

Deposition Testimony before the United States District Court, Western District of Oklahoma, in *Kathleen J. Myers v. Administrative Committee, Seventy Seven Energy, Inc. Retirement & Savings Plan, et al.*, 2020.

Deposition Testimony before the United States District Court, Middle District of Tennessee, in *Nikki Bollinger Grae v. Corrections Corporation of America, et al.*, 2020.

Deposition Testimony before the Supreme Court of the State of New York, County of New York, in *MUFG Union Bank, N.A. (f/k/a Union Bank, N.A.) v. Axos Bank (f/k/a Bank of Internet USA), et al.*, 2020.

Lucy P. Allen

Deposition Testimony before the United States District Court, Western District of Washington at Seattle, in *In re Zillow Group, Inc. Securities Litigation*, 2020.

Deposition Testimony before the United States District Court, Middle District of Tennessee, in *Zwick Partners LP and Aparna Rao v. Quorum Health Corporation*, 2019.

Testimony and Declaration before the United States District Court, Southern District of Iowa, in *Mahaska Bottling Company, Inc., et al. v. PepsiCo, Inc. and Bottling Group, LLC*, 2019.

Testimony before the United States District Court, Southern District of New York, in *Chicago Bridge & Iron Company N.V. Securities Litigation*, 2019.

Deposition Testimony before the United States District Court, Middle District of Florida, in *Jacob J. Beckel v. Fagron Holdings USA, LLC et al.*, 2019.

Appendix B – Materials Considered

Case documents and filings in this matter

1. Consolidated Class Action Complaint, filed December 17, 2021 (“Complaint”)
2. Memorandum and Recommendation on Motion to Dismiss, filed September 15, 2022
3. Order Adopting Magistrate Judge's Memorandum and Recommendation, filed November 29, 2022
4. Lead Plaintiffs’ Motion for Class Certification and Appointment of Class Representatives and Class Counsel and Supporting Memorandum of Law, filed April 7, 2023 (“Plaintiffs’ Motion for Class Certification”)
5. Expert Report of Zachary Nye, Ph.D., dated April 7, 2023, including exhibits, appendices, and materials considered and turned over (“Nye Report”)
6. Deposition of David Sullivan (former Executive Director at Co-Lead Plaintiff Plymouth County Retirement System), dated May 25, 2023 (“Sullivan Deposition”)
7. Deposition of Jay Smith (Fund Administrator at Co-Lead Plaintiff Trustees of the Teamsters Union No. 142 Pension Fund), dated June 6, 2023

Apache’s filings with the Securities and Exchange Commission (“SEC”) between 2016 and 2023, including

1. 1Q16 10-Q, filed May 6, 2016
2. 2Q16 10-Q, filed August 4, 2016
3. 3Q16 10-Q, filed November 4, 2016
4. FY16 Form 10-K, filed February 24, 2017
5. 1Q17 10-Q, filed May 5, 2017
6. 2Q17 10-Q, filed August 4, 2017
7. 3Q17 10-Q, filed November 3, 2017
8. FY17 Form 10-K, filed February 23, 2018
9. 1Q18 10-Q, filed May 3, 2018
10. 2Q18 10-Q, filed August 2, 2018
11. 3Q18 10-Q, filed November 1, 2018
12. FY18 Form 10-K, filed March 1, 2019
13. 1Q19 10-Q, filed May 3, 2019

Appendix B – Materials Considered

14. 2Q19 10-Q, filed August 1, 2019
15. 3Q19 10-Q, filed October 31, 2019
16. FY19 Form 10-K, filed February 28, 2020
17. 1Q20 10-Q, filed May 7, 2020
18. 2Q20 10-Q, filed July 30, 2020
19. 3Q20 10-Q, filed November 5, 2020
20. FY20 Form 10-K, filed February 26, 2021
21. 1Q21 10-Q, filed May 7, 2021
22. 2Q21 10-Q, filed August 5, 2021
23. 3Q21 10-Q, filed November 5, 2021
24. FY21 Form 10-K, filed February 22, 2022
25. 1Q22 10-Q, filed May 5, 2022
26. 2Q22 10-Q, filed August 4, 2022
27. 3Q22 10-Q, filed November 3, 2022
28. FY22 Form 10-K, filed February 23, 2023
29. 1Q23 10-Q, filed May 4, 2023

Apache's press releases, presentations, and conference call transcripts from 2016 to 2023, from Factiva and FactSet Research Systems, Inc.

Analyst reports on Apache

1. 2016.09.07 - Bank of America
2. 2016.09.07 - Cowen
3. 2016.09.07 - Credit Suisse
4. 2016.09.07 - Piper Sandler
5. 2016.09.07 - UBS
6. 2016.09.08 - BMO
7. 2016.09.08 - Credit Suisse
8. 2016.09.08 - Societe

Appendix B – Materials Considered

9. 2016.09.12 - Jefferies
10. 2016.09.14 - KLR Group
11. 2016.09.16 - Piper Sandler
12. 2016.09.26 - MUFG
13. 2016.09.26 - UBS
14. 2016.10.05 - Societe
15. 2016.10.26 - Credit Suisse
16. 2016.11.03 - Barclays
17. 2016.11.03 - BMO
18. 2016.11.03 - Bank of America (1)
19. 2016.11.03 - Bank of America (2)
20. 2016.11.03 - Cowen
21. 2016.11.03 - Piper Sandler
22. 2016.11.03 - Societe
23. 2016.11.03 - UBS (1)
24. 2016.11.03 - UBS (2)
25. 2016.11.04 - Credit Suisse
26. 2016.11.07 - MUFG
27. 2016.11.11 - BMO
28. 2016.11.11 - KLR Group
29. 2016.11.15 - Credit Suisse (1)
30. 2016.11.15 - Credit Suisse (2)
31. 2016.11.15 - Societe
32. 2016.11.21 - Piper Sandler
33. 2017.01.06 - Piper Sandler
34. 2017.01.11 - Societe
35. 2017.01.17 - Jefferies

Appendix B – Materials Considered

36. 2017.01.26 - Barclays
37. 2017.02.13 - Piper Sandler
38. 2017.02.14 - BMO
39. 2017.02.14 - Credit Suisse
40. 2017.02.14 - Societe
41. 2017.02.14 - UBS
42. 2017.02.21 - Credit Suisse
43. 2017.02.23 - Barclays
44. 2017.02.23 - BMO
45. 2017.02.23 - Bank of America
46. 2017.02.23 - Cowen
47. 2017.02.23 - Deutsche Bank
48. 2017.02.23 - Evercore
49. 2017.02.23 - JP Morgan
50. 2017.02.23 - Morgan Stanley
51. 2017.02.23 - Piper Sandler (1)
52. 2017.02.23 - Piper Sandler (2)
53. 2017.02.23 - RBC (1)
54. 2017.02.23 - RBC (2)
55. 2017.02.23 - Societe
56. 2017.02.23 - UBS
57. 2017.02.23 - Wells Fargo
58. 2017.02.24 - Bank of America
59. 2017.02.24 - Seaport
60. 2017.02.24 - UBS
61. 2017.02.27 - Credit Suisse
62. 2017.02.27 - Wells Fargo

Appendix B – Materials Considered

63. 2017.02.28 - MUFG
64. 2017.03.02 - Barclays
65. 2017.03.10 - Scotiabank (1)
66. 2017.03.10 - Scotiabank (2)
67. 2017.03.14 - Piper Sandler
68. 2017.03.17 - Jefferies
69. 2017.03.20 - KLR Group
70. 2017.03.27 - Scotiabank
71. 2017.04.03 - Scotiabank
72. 2017.04.18 - Jefferies
73. 2017.04.20 - Barclays
74. 2017.04.24 - Scotiabank
75. 2017.05.04 - Barclays
76. 2017.05.04 - BMO
77. 2017.05.04 - Cowen
78. 2017.05.04 - Scotiabank
79. 2017.05.04 - UBS (1)
80. 2017.05.04 - UBS (2)
81. 2017.05.05 - Credit Suisse
82. 2017.05.05 - Societe
83. 2017.05.08 - Barclays
84. 2017.05.15 - Societe
85. 2017.05.16 - KLR Group
86. 2017.05.18 - Societe
87. 2017.05.23 - UBS
88. 2017.06.07 - UBS
89. 2017.06.13 - Cowen

Appendix B – Materials Considered

90. 2017.06.20 - Barclays
91. 2017.06.29 - Scotiabank
92. 2017.07.06 - Barclays
93. 2017.07.06 - UBS
94. 2017.07.07 - Barclays
95. 2017.07.07 - Scotiabank
96. 2017.07.10 - Societe
97. 2017.07.18 - Scotiabank
98. 2017.07.21 - Scotiabank
99. 2017.08.03 - Barclays
100. 2017.08.03 - BMO
101. 2017.08.03 - Bank of America
102. 2017.08.03 - Cowen
103. 2017.08.03 - Deutsche Bank
104. 2017.08.03 - Evercore
105. 2017.08.03 - JP Morgan
106. 2017.08.03 - Morgan Stanley
107. 2017.08.03 - RBC
108. 2017.08.03 - Scotiabank
109. 2017.08.03 - Societe
110. 2017.08.04 - Scotiabank
111. 2017.08.07 - Barclays
112. 2017.08.07 - Evercore
113. 2017.08.08 - BMO
114. 2017.08.08 - KLR Group
115. 2017.08.08 - Wells Fargo
116. 2017.08.11 - Scotiabank

Appendix B – Materials Considered

117. 2017.08.18 - Cowen
118. 2017.08.21 - Scotiabank
119. 2017.08.29 - Jefferies
120. 2017.09.07 - MUFG
121. 2017.09.28 - Scotiabank
122. 2017.10.10 - Barclays
123. 2017.10.10 - Bank of America
124. 2017.10.10 - Deutsche Bank
125. 2017.10.10 - Evercore
126. 2017.10.10 - Jefferies
127. 2017.10.10 - JP Morgan
128. 2017.10.10 - Morgan Stanley
129. 2017.10.10 - RBC
130. 2017.10.10 - Scotiabank (1)
131. 2017.10.10 - Scotiabank (2)
132. 2017.10.10 - Seaport (1)
133. 2017.10.10 - Seaport (2)
134. 2017.10.11 - Barclays
135. 2017.10.16 - BMO
136. 2017.10.17 - BMO
137. 2017.10.18 - Societe
138. 2017.10.24 - Scotiabank
139. 2017.10.27 - Cowen
140. 2017.11.02 - Jefferies
141. 2017.11.02 - Societe
142. 2017.11.03 - Jefferies
143. 2017.11.13 - Scotiabank

Appendix B – Materials Considered

- 144. 2017.11.20 - Barclays
- 145. 2017.11.21 - Scotiabank
- 146. 2017.12.14 - Scotiabank
- 147. 2017.12.21 - Barclays
- 148. 2017.12.21 - Scotiabank
- 149. 2018.01.09 - Barclays
- 150. 2018.01.09 - Bank of America
- 151. 2018.01.09 - Credit Suisse
- 152. 2018.01.09 - Scotiabank (1)
- 153. 2018.01.09 - Scotiabank (2)
- 154. 2018.01.09 - Societe
- 155. 2018.01.24 - Societe
- 156. 2018.01.25 - Scotiabank
- 157. 2018.01.29 - Barclays
- 158. 2018.01.30 - Cowen
- 159. 2018.01.31 - Scotiabank
- 160. 2018.02.05 - JP Morgan
- 161. 2018.02.05 - Seaport (1)
- 162. 2018.02.05 - Seaport (2)
- 163. 2018.02.12 - Seaport
- 164. 2018.02.20 - RBC
- 165. 2018.02.22 - BMO
- 166. 2018.02.22 - Bank of America (1)
- 167. 2018.02.22 - Bank of America (2)
- 168. 2018.02.22 - Cowen
- 169. 2018.02.22 - Credit Suisse (1)
- 170. 2018.02.22 - Credit Suisse (2)

Appendix B – Materials Considered

- 171. 2018.02.22 - Deutsche Bank
- 172. 2018.02.22 - Evercore
- 173. 2018.02.22 - Jefferies
- 174. 2018.02.22 - JP Morgan
- 175. 2018.02.22 - NatAlliance
- 176. 2018.02.22 - RBC
- 177. 2018.02.22 - Scotiabank
- 178. 2018.02.22 - Societe
- 179. 2018.02.23 - Scotiabank
- 180. 2018.02.23 - Seaport
- 181. 2018.02.23 - Societe
- 182. 2018.02.26 - MUFG
- 183. 2018.02.26 - Scotiabank
- 184. 2018.02.27 - KLR Group
- 185. 2018.02.27 - Scotiabank
- 186. 2018.03.04 - RBC
- 187. 2018.03.06 - UBS
- 188. 2018.03.12 - JP Morgan
- 189. 2018.03.14 - Scotiabank
- 190. 2018.03.16 - Cowen
- 191. 2018.03.21 - Scotiabank
- 192. 2018.03.23 - RBC
- 193. 2018.03.29 - Societe
- 194. 2018.04.02 - Scotiabank
- 195. 2018.04.03 - Seaport
- 196. 2018.04.04 - Scotiabank
- 197. 2018.04.09 - Evercore

Appendix B – Materials Considered

198. 2018.04.09 - Macquarie
199. 2018.04.16 - Scotiabank
200. 2018.04.25 - Seaport
201. 2018.04.26 - Scotiabank
202. 2018.04.27 - JP Morgan
203. 2018.04.27 - RBC
204. 2018.04.27 - Societe
205. 2018.05.01 - RBC
206. 2018.05.02 - BMO
207. 2018.05.02 - Cowen
208. 2018.05.02 - Jefferies
209. 2018.05.02 - Macquarie
210. 2018.05.02 - RBC
211. 2018.05.02 - UBS
212. 2018.05.03 - Bank of America
213. 2018.05.03 - Credit Suisse
214. 2018.05.03 - Deutsche Bank
215. 2018.05.03 - Evercore
216. 2018.05.03 - JP Morgan
217. 2018.05.03 - NatAlliance
218. 2018.05.03 - Scotiabank (1)
219. 2018.05.03 - Scotiabank (2)
220. 2018.05.03 - Seaport
221. 2018.05.03 - Societe
222. 2018.05.04 - Seaport
223. 2018.05.07 - BMO
224. 2018.05.07 - Seaport

Appendix B – Materials Considered

- 225. 2018.05.08 - KLR Group
- 226. 2018.05.08 - RBC
- 227. 2018.05.14 - RBC
- 228. 2018.05.18 - UBS
- 229. 2018.05.21 - MUFG
- 230. 2018.05.21 - Scotiabank
- 231. 2018.05.23 - Seaport
- 232. 2018.05.24 - RBC
- 233. 2018.05.29 - Societe
- 234. 2018.06.06 - RBC
- 235. 2018.06.13 - JP Morgan
- 236. 2018.06.19 - JP Morgan
- 237. 2018.06.25 - RBC
- 238. 2018.06.26 - Scotiabank (1)
- 239. 2018.06.26 - Scotiabank (2)
- 240. 2018.06.26 - Societe
- 241. 2018.07.17 - Seaport (1)
- 242. 2018.07.17 - Seaport (2)
- 243. 2018.07.23 - JP Morgan
- 244. 2018.07.25 - Scotiabank
- 245. 2018.07.30 - RBC
- 246. 2018.08.01 - BMO
- 247. 2018.08.01 - Cowen
- 248. 2018.08.01 - Jefferies
- 249. 2018.08.01 - Macquarie
- 250. 2018.08.01 - RBC
- 251. 2018.08.02 - Bank of America

Appendix B – Materials Considered

- 252. 2018.08.02 - Credit Suisse
- 253. 2018.08.02 - Evercore
- 254. 2018.08.02 - JP Morgan
- 255. 2018.08.02 - Morgan Stanley
- 256. 2018.08.02 - NatAlliance
- 257. 2018.08.02 - RBC
- 258. 2018.08.02 - Scotiabank (1)
- 259. 2018.08.02 - Scotiabank (2)
- 260. 2018.08.02 - Seaport
- 261. 2018.08.02 - Societe
- 262. 2018.08.02 - UBS
- 263. 2018.08.03 - Seaport
- 264. 2018.08.07 - MUFG
- 265. 2018.08.08 - BMO
- 266. 2018.08.08 - Macquarie
- 267. 2018.08.08 - RBC
- 268. 2018.08.09 - Bank of America (1)
- 269. 2018.08.09 - Bank of America (2)
- 270. 2018.08.09 - Cowen
- 271. 2018.08.09 - Evercore
- 272. 2018.08.09 - NatAlliance
- 273. 2018.08.09 - Scotiabank (1)
- 274. 2018.08.09 - Scotiabank (2)
- 275. 2018.08.09 - Seaport
- 276. 2018.08.09 - Societe
- 277. 2018.08.09 - UBS
- 278. 2018.08.10 - JP Morgan

Appendix B – Materials Considered

- 279. 2018.08.19 - Evercore
- 280. 2018.08.20 - JP Morgan
- 281. 2018.08.21 - Macquarie
- 282. 2018.08.21 - Societe
- 283. 2018.08.24 - Scotiabank
- 284. 2018.08.27 - Macquarie
- 285. 2018.08.30 - Seaport
- 286. 2018.09.17 - Stephens (1)
- 287. 2018.09.17 - Stephens (2)
- 288. 2018.09.24 - Stephens (1)
- 289. 2018.09.24 - Stephens (2)
- 290. 2018.09.27 - Scotiabank
- 291. 2018.10.08 - Societe
- 292. 2018.10.12 - MUFG
- 293. 2018.10.17 - Seaport (1)
- 294. 2018.10.17 - Seaport (2)
- 295. 2018.10.17 - Seaport (3)
- 296. 2018.10.19 - JP Morgan
- 297. 2018.10.19 - Stephens (1)
- 298. 2018.10.19 - Stephens (2)
- 299. 2018.10.24 - Scotiabank
- 300. 2018.10.31 - BMO
- 301. 2018.10.31 - Bank of America
- 302. 2018.10.31 - Jefferies
- 303. 2018.10.31 - Macquarie
- 304. 2018.10.31 - RBC
- 305. 2018.11.01 - Credit Suisse

Appendix B – Materials Considered

- 306. 2018.11.01 - Evercore
- 307. 2018.11.01 - JP Morgan
- 308. 2018.11.01 - NatAlliance
- 309. 2018.11.01 - Piper Sandler
- 310. 2018.11.01 - Scotiabank (1)
- 311. 2018.11.01 - Scotiabank (2)
- 312. 2018.11.01 - Seaport
- 313. 2018.11.01 - Societe
- 314. 2018.11.01 - Stephens
- 315. 2018.11.01 - UBS
- 316. 2018.11.02 - Macquarie
- 317. 2018.11.02 - RBC
- 318. 2018.11.02 - Stephens (1)
- 319. 2018.11.02 - Stephens (2)
- 320. 2018.11.05 - MUFG
- 321. 2018.11.12 - MUFG
- 322. 2018.11.13 - Scotiabank
- 323. 2018.11.15 - Jefferies
- 324. 2018.11.20 - JP Morgan
- 325. 2018.11.21 - Evercore
- 326. 2018.11.29 - Cowen (1)
- 327. 2018.11.29 - Cowen (2)
- 328. 2018.12.04 - Macquarie
- 329. 2018.12.04 - RBC
- 330. 2018.12.04 - Seaport (1)
- 331. 2018.12.04 - Seaport (2)
- 332. 2018.12.04 - Seaport (3)

Appendix B – Materials Considered

- 333. 2018.12.05 - Seaport
- 334. 2018.12.05 - Stephens
- 335. 2018.12.06 - Seaport
- 336. 2018.12.10 - Seaport
- 337. 2018.12.18 - Societe
- 338. 2019.01.15 - Seaport (1)
- 339. 2019.01.15 - Seaport (2)
- 340. 2019.01.15 - Seaport (3)
- 341. 2019.01.16 - Barclays
- 342. 2019.01.18 - Cowen
- 343. 2019.01.18 - RBC
- 344. 2019.01.24 - Credit Suisse
- 345. 2019.01.24 - Macquarie
- 346. 2019.01.25 - Cowen
- 347. 2019.01.25 - Societe
- 348. 2019.01.29 - MUFG
- 349. 2019.01.29 - Seaport
- 350. 2019.01.30 - Barclays
- 351. 2019.01.30 - RBC
- 352. 2019.02.07 - Barclays (1)
- 353. 2019.02.07 - Barclays (2)
- 354. 2019.02.07 - BMO
- 355. 2019.02.07 - Cowen
- 356. 2019.02.07 - Evercore
- 357. 2019.02.07 - JP Morgan
- 358. 2019.02.07 - Macquarie
- 359. 2019.02.07 - Seaport

Appendix B – Materials Considered

- 360. 2019.02.08 - Bank of America
- 361. 2019.02.08 - Credit Suisse
- 362. 2019.02.08 - Morgan Stanley
- 363. 2019.02.08 - Piper Sandler
- 364. 2019.02.08 - Scotiabank (1)
- 365. 2019.02.08 - Scotiabank (2)
- 366. 2019.02.08 - Seaport
- 367. 2019.02.08 - Societe
- 368. 2019.02.08 - Stephens
- 369. 2019.02.08 - UBS
- 370. 2019.02.10 - Evercore
- 371. 2019.02.18 - MUFG
- 372. 2019.02.20 - Cowen
- 373. 2019.02.20 - Seaport (1)
- 374. 2019.02.20 - Seaport (2)
- 375. 2019.02.25 - Credit Suisse
- 376. 2019.02.27 - BMO
- 377. 2019.02.27 - Cowen
- 378. 2019.02.27 - Jefferies
- 379. 2019.02.27 - JP Morgan (1)
- 380. 2019.02.27 - JP Morgan (2)
- 381. 2019.02.27 - Macquarie
- 382. 2019.02.27 - RBC
- 383. 2019.02.27 - Seaport
- 384. 2019.02.28 - Barclays
- 385. 2019.02.28 - Bank of America
- 386. 2019.02.28 - Credit Suisse

Appendix B – Materials Considered

- 387. 2019.02.28 - Evercore
- 388. 2019.02.28 - JP Morgan
- 389. 2019.02.28 - Piper Sandler
- 390. 2019.02.28 - Scotiabank (1)
- 391. 2019.02.28 - Scotiabank (2)
- 392. 2019.02.28 - Seaport
- 393. 2019.02.28 - Societe
- 394. 2019.02.28 - Stephens
- 395. 2019.03.01 - Seaport
- 396. 2019.03.06 - Barclays
- 397. 2019.03.06 - MUFG
- 398. 2019.03.06 - Scotiabank
- 399. 2019.03.08 - RBC
- 400. 2019.03.11 - Cowen
- 401. 2019.03.11 - RBC
- 402. 2019.03.11 - Stephens
- 403. 2019.03.19 - Jefferies
- 404. 2019.03.20 - Societe
- 405. 2019.03.21 - Evercore
- 406. 2019.03.21 - Seaport
- 407. 2019.03.22 - Seaport
- 408. 2019.03.25 - Evercore
- 409. 2019.03.27 - Stephens (1)
- 410. 2019.03.27 - Stephens (2)
- 411. 2019.04.01 - Evercore
- 412. 2019.04.05 - BMO
- 413. 2019.04.09 - Macquarie

Appendix B – Materials Considered

- 414. 2019.04.10 - RBC
- 415. 2019.04.10 - Seaport
- 416. 2019.04.11 - MUFG
- 417. 2019.04.11 - Seaport (1)
- 418. 2019.04.11 - Seaport (2)
- 419. 2019.04.17 - Societe
- 420. 2019.04.22 - Barclays
- 421. 2019.04.23 - Macquarie
- 422. 2019.04.23 - RBC
- 423. 2019.04.23 - Scotiabank (1)
- 424. 2019.04.23 - Scotiabank (2)
- 425. 2019.04.23 - Stephens
- 426. 2019.04.24 - Seaport
- 427. 2019.04.26 - Cowen
- 428. 2019.04.28 - Barclays
- 429. 2019.04.29 - JP Morgan
- 430. 2019.04.30 - Scotiabank
- 431. 2019.05.01 - BMO
- 432. 2019.05.01 - Bank of America
- 433. 2019.05.01 - Cowen
- 434. 2019.05.01 - Jefferies
- 435. 2019.05.01 - JP Morgan
- 436. 2019.05.01 - Macquarie
- 437. 2019.05.01 - Piper Sandler
- 438. 2019.05.01 - RBC
- 439. 2019.05.01 - Scotiabank
- 440. 2019.05.02 - Barclays

Appendix B – Materials Considered

- 441. 2019.05.02 - Credit Suisse
- 442. 2019.05.02 - Evercore
- 443. 2019.05.02 - JP Morgan
- 444. 2019.05.02 - Macquarie
- 445. 2019.05.02 - MUFG
- 446. 2019.05.02 - RBC
- 447. 2019.05.02 - Seaport (1)
- 448. 2019.05.02 - Seaport (2)
- 449. 2019.05.02 - Stephens
- 450. 2019.05.02 - UBS
- 451. 2019.05.03 - Seaport
- 452. 2019.05.13 - Evercore
- 453. 2019.05.22 - Cowen
- 454. 2019.05.22 - Credit Suisse
- 455. 2019.05.23 - Seaport (1)
- 456. 2019.05.23 - Seaport (2)
- 457. 2019.05.28 - Barclays
- 458. 2019.05.30 - Stephens
- 459. 2019.06.04 - RBC
- 460. 2019.06.09 - UBS
- 461. 2019.06.11 - Seaport (1)
- 462. 2019.06.11 - Seaport (2)
- 463. 2019.06.11 - Seaport (3)
- 464. 2019.06.13 - Evercore
- 465. 2019.06.18 - Scotiabank
- 466. 2019.06.27 - Piper Sandler
- 467. 2019.07.09 - Barclays

Appendix B – Materials Considered

- 468. 2019.07.11 - Wells Fargo
- 469. 2019.07.12 - JP Morgan
- 470. 2019.07.18 - Bank of America
- 471. 2019.07.18 - RBC
- 472. 2019.07.19 - Cowen
- 473. 2019.07.19 - Credit Suisse
- 474. 2019.07.19 - MUFG
- 475. 2019.07.22 - JP Morgan
- 476. 2019.07.22 - Seaport
- 477. 2019.07.31 - Barclays (1)
- 478. 2019.07.31 - Barclays (2)
- 479. 2019.07.31 - BMO
- 480. 2019.07.31 - JP Morgan
- 481. 2019.07.31 - Macquarie
- 482. 2019.08.01 - Bank of America
- 483. 2019.08.01 - Cowen
- 484. 2019.08.01 - Credit Suisse
- 485. 2019.08.01 - Evercore
- 486. 2019.08.01 - Jefferies
- 487. 2019.08.01 - JP Morgan
- 488. 2019.08.01 - Piper Sandler
- 489. 2019.08.01 - Seaport
- 490. 2019.08.01 - Stephens
- 491. 2019.08.02 - MUFG
- 492. 2019.08.05 - RBC
- 493. 2019.08.05 - UBS
- 494. 2019.08.12 - Evercore

Appendix B – Materials Considered

- 495. 2019.08.21 - Cowen
- 496. 2019.08.22 - Jefferies
- 497. 2019.08.22 - JP Morgan
- 498. 2019.09.16 - MKM
- 499. 2019.09.17 - MKM
- 500. 2019.09.23 - Truist
- 501. 2019.09.24 - Truist
- 502. 2019.09.25 - Credit Suisse
- 503. 2019.10.07 - Cowen
- 504. 2019.10.10 - Seaport
- 505. 2019.10.14 - Evercore
- 506. 2019.10.14 - JP Morgan
- 507. 2019.10.16 - RBC
- 508. 2019.10.17 - Cowen
- 509. 2019.10.18 - Bank of America
- 510. 2019.10.21 - Barclays
- 511. 2019.10.21 - Evercore
- 512. 2019.10.22 - Bank of America
- 513. 2019.10.25 - Credit Suisse
- 514. 2019.10.25 - RBC
- 515. 2019.10.25 - Truist
- 516. 2019.10.28 - MUFG
- 517. 2019.10.29 - Morgan Stanley (1)
- 518. 2019.10.29 - Morgan Stanley (2)
- 519. 2019.10.30 - Barclays
- 520. 2019.10.30 - BMO
- 521. 2019.10.30 - Cowen

Appendix B – Materials Considered

- 522. 2019.10.30 - Evercore
- 523. 2019.10.30 - JP Morgan
- 524. 2019.10.30 - Piper Sandler
- 525. 2019.10.30 - RBC
- 526. 2019.10.30 - Truist
- 527. 2019.10.31 - Barclays
- 528. 2019.10.31 - Bank of America
- 529. 2019.10.31 - Credit Suisse
- 530. 2019.10.31 - JP Morgan
- 531. 2019.10.31 - Stephens
- 532. 2019.10.31 - Truist
- 533. 2019.10.31 - UBS
- 534. 2019.11.01 - Credit Suisse
- 535. 2019.11.04 - MKM
- 536. 2019.11.06 - JP Morgan
- 537. 2019.11.25 - Cowen
- 538. 2019.11.25 - Evercore
- 539. 2019.12.02 - Barclays
- 540. 2019.12.02 - Credit Suisse
- 541. 2019.12.02 - Morgan Stanley
- 542. 2019.12.02 - RBC (1)
- 543. 2019.12.02 - RBC (2)
- 544. 2019.12.02 - Truist
- 545. 2019.12.03 - Stephens
- 546. 2019.12.05 - Credit Suisse
- 547. 2019.12.05 - Stephens
- 548. 2019.12.06 - Barclays

Appendix B – Materials Considered

- 549. 2019.12.09 - Bank of America
- 550. 2019.12.18 - UBS
- 551. 2019.12.22 - JP Morgan
- 552. 2019.12.22 - RBC
- 553. 2019.12.23 - Bank of America
- 554. 2019.12.23 - Cowen
- 555. 2019.12.23 - Credit Suisse
- 556. 2019.12.23 - Piper Sandler
- 557. 2019.12.23 - RBC
- 558. 2019.12.23 - Stephens
- 559. 2019.12.23 - Truist
- 560. 2019.12.24 - Barclays
- 561. 2019.12.24 - UBS
- 562. 2020.01.06 - Bank of America
- 563. 2020.01.07 - Barclays
- 564. 2020.01.07 - Bank of America
- 565. 2020.01.07 - Cowen
- 566. 2020.01.07 - Credit Suisse
- 567. 2020.01.07 - Evercore
- 568. 2020.01.07 - JP Morgan
- 569. 2020.01.07 - Piper Sandler
- 570. 2020.01.07 - RBC
- 571. 2020.01.07 - Stephens
- 572. 2020.01.07 - Truist
- 573. 2020.01.07 - UBS
- 574. 2020.01.08 - Barclays
- 575. 2020.01.08 - Morgan Stanley

Appendix B – Materials Considered

- 576. 2020.01.08 - Truist
- 577. 2020.01.13 - Evercore
- 578. 2020.01.14 - MKM
- 579. 2020.01.14 - Susquehanna (1)
- 580. 2020.01.14 - Susquehanna (2)
- 581. 2020.01.16 - Cowen
- 582. 2020.01.21 - Truist
- 583. 2020.01.22 - JP Morgan
- 584. 2020.01.23 - RBC
- 585. 2020.01.23 - Scotiabank
- 586. 2020.01.24 - Barclays
- 587. 2020.01.27 - RBC
- 588. 2020.02.26 - Barclays
- 589. 2020.02.26 - BMO
- 590. 2020.02.26 - Bank of America
- 591. 2020.02.26 - Cowen
- 592. 2020.02.26 - JP Morgan
- 593. 2020.02.26 - RBC
- 594. 2020.02.26 - Scotiabank (1)
- 595. 2020.02.26 - Scotiabank (2)
- 596. 2020.02.26 - Truist
- 597. 2020.02.26 - UBS
- 598. 2020.02.27 - Credit Suisse
- 599. 2020.02.27 - Evercore
- 600. 2020.02.27 - JP Morgan
- 601. 2020.02.27 - Piper Sandler
- 602. 2020.02.27 - Stephens

Appendix B – Materials Considered

- 603. 2020.02.27 - Truist
- 604. 2020.02.28 - Credit Suisse
- 605. 2020.02.28 - Scotiabank
- 606. 2020.02.28 - Susquehanna
- 607. 2020.03.02 - JP Morgan
- 608. 2020.03.02 - MKM
- 609. 2020.03.03 - RBC
- 610. 2020.03.03 - Stephens
- 611. 2020.03.05 - Evercore
- 612. 2020.03.08 - Truist
- 613. 2020.03.09 - RBC
- 614. 2020.03.10 - BMO
- 615. 2020.03.11 - Cowen
- 616. 2020.03.11 - Susquehanna
- 617. 2020.03.12 - Cowen
- 618. 2020.03.12 - Credit Suisse
- 619. 2020.03.12 - RBC
- 620. 2020.03.12 - Stephens (1)
- 621. 2020.03.12 - Stephens (2)
- 622. 2020.03.12 - Truist
- 623. 2020.03.13 - Bank of America
- 624. 2020.03.16 - BMO
- 625. 2020.03.16 - Susquehanna
- 626. 2020.03.19 - Cowen
- 627. 2020.03.23 - Evercore
- 628. 2020.03.24 - Barclays
- 629. 2020.03.25 - Cowen

Appendix B – Materials Considered

- 630. 2020.03.25 - JP Morgan
- 631. 2020.03.27 - Truist
- 632. 2020.03.30 - Evercore
- 633. 2020.03.30 - JP Morgan
- 634. 2020.04.01 - UBS
- 635. 2020.04.29 - Cowen
- 636. 2020.05.07 - Credit Suisse
- 637. 2020.07.15 - Cowen
- 638. 2020.07.15 - Credit Suisse
- 639. 2020.07.30 - Credit Suisse
- 640. 2021.10.15 - Cowen
- 641. 2021.10.21 - RBC
- 642. 2021.10.22 - Bank of America
- 643. 2022.01.19 - Cowen
- 644. 2022.01.25 - Truist
- 645. 2022.03.14 - RBC
- 646. 2022.04.26 - Cowen
- 647. 2022.05.05 - Scotiabank
- 648. 2022.06.08 - RBC
- 649. 2022.07.14 - RBC
- 650. 2022.07.27 - Cowen
- 651. 2022.08.03 - Cowen
- 652. 2022.08.03 - Evercore
- 653. 2022.11.07 - JP Morgan

Analyst reports and SEC Filings on other E&P Companies, including

- 1. 2017.06.01 – Credit Suisse on Cimarex
- 2. Cimarex FY20 Form 10-K, filed February 23, 2021

Appendix B – Materials Considered

3. Cimarex Form 8-K, filed October 1, 2021

News stories on Apache, other E&P companies, and the oil and gas industry from Factiva, Google, and Bloomberg, including

1. “What are natural gas liquids and how are they used?” *U.S. Energy Information Administration*, April 20, 2012
2. “High value of liquids drives U.S. producers to target wet natural gas resources,” *U.S. Energy Information Administration*, May 8, 2014
3. Waha Hub gas prices hit negative territory as Permian pipe restricts flow,” *S&P Global Market Intelligence*, March 22, 2019
4. “Apache Corporation Announces Temporary Deferral of Alpine High Natural Gas Production in Response to Recent Pricing at Waha Hub,” *Globe Newswire*, April 23, 2019
5. “Apache Corporation Announces Second-Quarter 2019 Financial and Operational Results,” *GlobeNewswire*, July 31, 2019
6. “Apache: SVP of Worldwide Exploration Steven Keenan Resigned,” *Bloomberg*, October 25, 2019
7. “Apache Executive’s Departure Sparks Worst Rout Since 2016,” *Bloomberg*, October 25, 2019
8. “OPEC Proposes a Large Cut in Oil Output,” *The New York Times*, March 5, 2020
9. “OPEC+ fails to agree on massive supply cut, sending crude prices to 2017 lows,” *CNBC*, March 6, 2020
10. “Oil nose-dives as Saudi Arabia and Russia set off ‘scorched earth’ price war,” *CNBC*, March 9, 2020
11. “Why oil prices are crashing and what it means,” *CNN*, March 9, 2020
12. “WHO Director-General’s opening remarks at the media briefing on COVID-19 - 11 March 2020,” *World Health Organization*, March 11, 2020
13. “Apache Corporation Announces Revised Capital Guidance and Dividend Reduction,” *GlobeNewswire*, March 12, 2020.
14. “Dow Jones Today, Bear Market Worsens On Trump Response To Coronavirus Pandemic; Boeing Shares Collapse,” *Investor’s Business Daily*, March 12, 2020
15. “After a Long Fall in Oil Prices, a Crash,” *The Wall Street Journal Online*, March 15, 2020
16. “The Oil Price Crash Puts Apache Corporation In A Tough Spot,” *Seeking Alpha*, March 16, 2020
17. “The Coronavirus Crash Of 2020, And The Investing Lesson It Taught Us,” *Forbes*, February 11, 2021

Appendix B – Materials Considered

18. “APA Corporation Closes Two Transactions; Receives \$1 Billion of Proceeds,” *GlobeNewswire*, March 14, 2022
19. “Waha Hub spot gas’ basis spread blows out on PHP maintenance,” *S&P Global Commodity Insights*, May 2, 2022
20. “APA Drilling First Pad Since 2019 in Permian’s Natural Gas-Rich Alpine High as Prices, Demand Soar,” *NGI’s All News Access*, November 8, 2022
21. “U.S. Henry Hub natural gas price expected to increase from recent lows,” *U.S. Energy Information Administration*, March 26, 2023
22. “Permian Gas Price And Fundamentals,” *AEGIS Hedging*, May 19, 2023
23. “Waha Price to Hurt APA Permian Gas Activity: Earnings Outlook,” *Bloomberg*, May 5, 2023.

Financial data from Bloomberg, L.P., FactSet Research Systems, Inc., and Federal Reserve Bank of St. Louis (“FRED”), including

1. Price, total return, trading volume, and weights in market and industry indices for Apache
2. Price and total return data for S&P500, S&P Oil & Gas Exploration & Production Select Industry Index, and S&P 500 Oil & Gas Exploration and Production Sub Industry GICS Level 4 Index
3. Data on constituents of S&P 500 Oil & Gas Exploration and Production Sub Industry GICS Level 4 Index
4. Brent Global Crude Oil Spot Price, West Texas Intermediate Crude Oil Spot Price, Natural Gas Liquids Composite Price, Waha Hub Natural Gas Spot Price, and VIX Index data

Documents on Lead Plaintiffs’ trading

1. PLYMOUTHCOUNTY_00000014
2. PLYMOUTHCOUNTY_00000098
3. PLYMOUTHCOUNTY_00000106
4. PLYMOUTHCOUNTY_00000114
5. PLYMOUTHCOUNTY_00000122
6. PLYMOUTHCOUNTY_00000130
7. PLYMOUTHCOUNTY_00000138
8. PLYMOUTHCOUNTY_00000146
9. PLYMOUTHCOUNTY_00000154
10. PLYMOUTHCOUNTY_00000162

Appendix B – Materials Considered

11. TEAMSTERS142_00000014
12. TEAMSTERS142_00000108
13. TEAMSTERS142_00000152
14. TEAMSTERS142_00000193
15. TEAMSTERS142_00000276
16. TEAMSTERS142_00000369
17. TEAMSTERS142_00000442
18. TEAMSTERS142_00000014
19. TEAMSTERS142_00000528

Legal decisions on class certification, including

1. *Cammer v. Bloom*, 711 F. Supp. 1264 (D.N.J. 1989)
2. *Greenberg v. Crossroads Sys., Inc.*, 364 F.3d 657 (5th Cir. 2004).
3. *In Re TECO Energy Inc. Securities Litigation*, 2006 U.S. Dist. LEXIS 18101 (M.D. Fla. March 30, 2006)
4. *Barrie v. Intervoice-Brite, Inc.*, 2006 U.S. Dist. LEXIS 69299 (N.D. Tex. Sept. 25, 2006)
5. *Halliburton I*, 131 S. Ct. 2179, 2186 (2011)
6. *Halliburton II*, 134 S. Ct. 2398 (2014)
7. *Bricklayers & Trowel Trades International Pension Fund v. Credit Suisse Securities (USA) LLC*, 752 F.3d 82, 92 (1st Cir. 2014)
8. *Erica P. John Fund, Inc. v. Halliburton Company*, No. 3: 02-CV-1152-M (N.D. Tex. July 25, 2015)
9. *John ROONEY, Individually and on Behalf of All Others Similarly Situated, v. EZCORP, INC. and Mark E. Kuchenrither*, Cause No.: A-15-CA-00608-SS, dated February 19, 2019
10. *Goldman Sachs Group, Inc., et al. v. Arkansas Teacher Retirement System, et al.*, No. 20-222., dated June 21, 2021
11. *In Re EQT Corporation Securities Litigation*, 2:19-cv-00754-RJC, dated August 11, 2022

Appendix B – Materials Considered

Academic literature and textbooks on finance, securities, valuation, and statistics, including

1. Fisher, Franklin M., “Multiple Regression in Legal Proceedings,” *Columbia Law Review*, 80: 1980
2. Fischel, Daniel R., “Use of Modern Finance Theory in Securities Fraud Cases Involving Actively Traded Securities,” *The Business Lawyer*, 38: 1982
3. Bowman, Robert G., “Understanding and Conducting Event Studies,” *Journal of Business Finance & Accounting* 10(4): 1983
4. Cornell, Bradford, *Corporate Valuation* (McGraw-Hill: New York, NY, 1993)
5. Alexander, Janet C., “The Value of Bad News in Securities Class Actions,” *UCLA Law Review*, 41: 1994
6. Mitchell, Mark L., and Jeffrey M. Netter, “The Role of Financial Economics in Securities Fraud Cases: Applications at the Securities and Exchange Commission,” *The Business Lawyer*, Vol. 49 (1994)
7. MacKinlay, A. Craig, “Event Studies in Economics and Finance,” *Journal of Economic Literature*, 35: 1997
8. Hogg, Robert V. and Elliot A. Tanis, *Probability and Statistical Inference*, (Prentice Hall: Upper Saddle River, NJ, 5th ed., 1997)
9. Shleifer, Andrei, *Inefficient Markets* (Oxford University Press: New York, NY, 2000)
10. Dunbar, Frederick C., and David I. Tabak, “Materiality and Magnitude: Event Studies in the Courtroom,” *Litigation Services Handbook: The Role of the Financial Expert* (John Wiley & Sons, Inc.: New York, NY, 3rd ed., 2001)
11. Barnes, David W., “Too many probabilities: statistical evidence of tort causation,” *Law and Contemporary Problems* 64(191) (2001)
12. Ross, Stephen A., Randolph Westerfield, and Jeffrey F. Jaffe, *Corporate Finance* (McGraw-Hill/Irwin: Boston, MA, 6th ed., 2002)
13. Brealey, Richard A., Stewart C. Myers and Franklin Allen, *Principles of Corporate Finance* (McGraw-Hill: New York, NY, 7th ed., 2003)
14. Shiller, Robert J., “From Efficient Markets Theory to Behavior Finance,” *Journal of Economic Perspective*, 17.1 (2003)
15. Brealey, Richard A. and Stewart C. Myers, *Principles of Corporate Finance*, (New York: McGraw-Hill Irwin, 10th Edition, 2011)

Appendix B – Materials Considered

16. Freedman, David A., and David H. Kaye, “Reference Guide on Statistics,” *Reference Manual on Scientific Evidence* (Washington, D.C.: The National Academies Press, 3rd ed., 2011)
17. Brealey, Richard A., Stewart C. Myers and Franklin Allen, *Principles of Corporate Finance* (McGraw-Hill: New York, NY, 10th ed., 2011)
18. Bodie, Zvi, Alex Kane, and Alan J. Marcus, *Investments* (McGraw-Hill: New York, NY, 10th ed., 2014)
19. Berk, Jonathan and Peter DeMarzo, *Corporate Finance* (Pearson: Boston, MA, 3rd ed., 2014)
20. Abdeldayem, Marwan M. and Ramzi Nekhili, “Credit Rating Changes and Stock Market Reaction in the Kingdom of Bahrain,” *International Journal of Economics and Finance*, 8(8):2016
21. Harvey, Campbell R., “Presidential Address: The Scientific Outlook in Financial Economics,” *The Journal of Finance* 77(4): 2017
22. Kennedy-Shaffer, Lee, “When the Alpha is the Omega: P-Values, ‘Substantial Evidence,’ and the 0.05 Standard at FDA,” *Food Drug Law Journal*, 72(4): 2017

Miscellaneous

1. “What’s the Difference Between Wet and Dry Natural Gas,” *StateImpact Pennsylvania*
2. “Definitions, Sources and Explanatory Notes,” *U.S. Energy Information Administration*
3. “Play,” *Schlumberger’s Energy Glossary*, accessed at: <https://glossary.slb.com/en/terms/p/play>
4. “Petroleum Reserves Definitions [1997 Archive],” *Society of Petroleum Engineers*, accessed at: <https://www.spe.org/en/industry/petroleum-reserves-definitions/>
5. “S&P Oil & Gas Exploration & Production Select Industry Index Factsheet,” *S&P Dow Jones Indices*, as of April 28, 2023.
6. “S&P Oil & Gas Exploration & Production Select Industry Index,” *S&P Dow Jones Indices*, as of April 28, 2023.
7. “Shut-in,” *Merriam Webster*, accessed at: <https://www.merriam-webster.com/dictionary/shut-in>
8. “P-values and significance tests,” *Khan Academy*, accessed at: <https://www.khanacademy.org/math/ap-statistics/xfb5d8e68:inference-categorical-proportions/idea-significancetests/v/p-values-and-significance-tests>.
9. “Cboe VIX Index,” *Cboe*, accessed at: https://www.cboe.com/tradable_products/vix/

Appendix B – Materials Considered

10. “We Are Seeking Alpha,” *Seeking Alpha*, accessed at:
<https://about.seekingalpha.com/>
11. Profile page of Sarfaraz A. Khan on *Seeking Alpha*’s website, accessed at:
<https://seekingalpha.com/author/sarfaraz-a-khan>
12. Profile page of Sarfaraz A. Khan on *LinkedIn*, accessed at:
<https://www.linkedin.com/in/sarfaraz-khan-61012b34/>

Appendix C – Alleged Misrepresentations Made During the Alleged Class Period

No.	Date	Event	Alleged Misrepresentation from the Complaint
1	9/7/16	Press Release & Barclays Presentation	<p>Press Release - Apache announced that “after more than two years of extensive geologic and geophysical work, methodical acreage accumulation, and strategic testing and delineation drilling, the company can confirm the discovery of a significant new resource play, the ‘Alpine High.’” ¶191</p> <p>The press release touted Alpine High as an immense oil and wet gas field, holding an estimated “3 billion barrels of oil” and “75 trillion cubic feet (Tcf) of rich gas” in the Barnett and Woodford formations alone, as well as “significant oil potential in the shallower Pennsylvanian, Bone Springs and Wolfcamp formations.” ¶194</p> <p>Apache made similar statements in an accompanying slide titled “Apache’s Differentiated View” which claimed that the “Perception” in the industry was that Alpine High was “Dry Gas,” whereas the “Reality” was “Wet Gas & Oil.” ¶200</p> <p>Barclays presentation - Apache highlighted purported “Strong Well Results” and “Successful Oil Tests” from Alpine High. Included on the “Strong Well Results” slide was the Weissmies 1H, for which Apache cited 24-hour initial production (“IP”) rates of 281 barrels of oil per day and 7.1 million cubic feet of gas, and the Ortler 1H, for which Apache reported 24-hour IP rates of 1.7 million cubic feet of gas. The “Successful Oil Tests” slide feature two wells: the Mont Blanc 2H, for which the slide reported an IP rate of 854 barrels of oil per day, and the Redwood 1P, for which the slide reported a rate of 700 barrels of oil per day. ¶202</p>
2	9/21/16	Johnson Rice Energy Conference Presentation	<p>Apache presented slides substantially identical Alpine High Key Highlights” and “Apache Differentiated View” slides described above in 9/7/16. ¶¶204-205</p>
3	9/28/16	Forbes Article	<p>The article noted that “Christmann says the field, which they named Alpine High, contains some of the cheapest oil and gas to produce not just in the U.S., but in the world, economic to drill at prices as low as \$40 a barrel[.]” and quoted Defendant Christmann as saying that “Alpine High will be very difficult to compete with on an economic basis.” ¶206</p>

Appendix C – Alleged Misrepresentations Made During the Alleged Class Period

No.	Date	Event	Alleged Misrepresentation from the Complaint
4	11/3/16	3Q16 Earnings Conference Call	<p>Defendant Christmann highlighted that Alpine High was “an immense resource and a transformational discovery for Apache” that would “drive incremental growth and returns for years to come,” and that “[t]he Alpine High is an immense resource and a transformation discovery for Apache.” Christmann (CEO) provided investors with a detailed explanation of the “5 distinct target formations” that comprised Alpine High, stating “all of which, we believe, will be highly economic.” ¶208</p> <p>Defendants stated that “[t]wo early tests have demonstrated that these formations [Bone Springs and Wolfcamp] are oil-productive and offer significant potential at Alpine High.” ¶208</p> <p>Defendant Sullivan made similar statements and stated that “[a]s expected in a resource play, Alpine High is becoming more predictable. Every well we’ve drilled has confirmed our model. . . . We continue to see excellent production performance across this play.” ¶209</p>
5	11/18/16	Merrill Lynch Global Energy Conference Presentation	Apache presented slides substantially identical to the “Alpine High Key Highlights” and “Apache Differentiated View” slides described above in 9/7/16. ¶212
6	1/5/17 (after-market)	January Investor Presentation	The presentation slides contained the same materially false or misleading statements made during the 9/7/17 presentation for the Barclays Conference. The presentation also made substantially identical claims to those alleged in 9/7/16 regarding the initial production rates of Redwood 1P, Mont Blanc 2H, Weissmies 1H, and Ortler 1H. ¶214
7	2/14/17	Credit Suisse Energy Summit Presentation	During the conference, Defendant Christmann asserted that the Company had “proven” and “confirmed” that Alpine High was flush with wet gas and oil: “So what have we confirmed? We have a very extensive play fairway, 60 miles. We have 5 geologic formations, each with multiple targets across a 5,000-foot column. We’ve now proven that we have a segregated hydrocarbon column anywhere from dry gas to oil and

Appendix C – Alleged Misrepresentations Made During the Alleged Class Period

No.	Date	Event	Alleged Misrepresentation from the Complaint
			<p>we have it across this whole area. So all we have to do is put the rock in the right window and you're going to get anywhere from dry gas to wet gas to oil." ¶216</p> <p>Defendant Christmann confirmed that Alpine High was "a highly economic wet gas play" and emphasized that "Alpine High is just an enormous hydrocarbon system. And we're still just scratching the surface as we work through this. Like most major discoveries, it's getting bigger with more data, which is a big thing and a great thing. We have a highly economic wet gas play ... now confirmed across the 55-mile fairway." ¶217</p> <p>"The nice thing about this ... it doesn't take long with the economics on these wells for them to turn. And what I've said in the past is we're not talking hundreds of millions of cubic feet a day, but we're talking multiple B[illion]s ultimately as you move into the future years," adding that "we'll get there quickly." ¶219</p> <p>Defendant Christmann added "we will get to the oil and we believe there is a lot there, because it's in the system. We validated it. We have a proven column and it's in the right window." ¶220</p> <p>Apache's slide presentation at the Credit Suisse Energy Summit also repeated the Company's prior claims regarding the initial production statistics at four previously disclosed wells: the Weissmies 1H, the Ortler 1H, the Mont Blanc 2H, and the Redwood 1P, as described further at ¶ 202. ¶ 222</p>
8	2/23/17	4Q16 and FY16 Financial Results Press Release & Earnings Conference Call	<p>Issued a press release, Defendant Christmann was quoted in the press release stating "We [] discovered and announced the Alpine High, a sizeable new resource play in the Delaware Basin, which brings significant drilling inventory and puts Apache in one of the most exciting and competitive positions in the industry." ¶223</p> <p>Defendants touted for Alpine High stating: "we're not talking hundreds of millions of cubic feet of gas here a day, we're talking multiple Bcfs, a very rich gas, wet</p>

Appendix C – Alleged Misrepresentations Made During the Alleged Class Period

No.	Date	Event	Alleged Misrepresentation from the Complaint
			<p>gas, NGLs, and we think there's going to be also a lot of oil to go with it." ¶224</p> <p>Defendant Christmann further highlighted that Alpine High contained "3,000 confirmed locations" for wet gas, stating: "we gave you some location counts at Barclays. We've come back now and said we've got a minimum of 3,000 confirmed locations in the wet gas window," emphasizing that "location count has increased significantly since last September." Significantly, Christmann reaffirmed that "even in the lower commodity price environment, this play is going to be very economic." ¶224</p>
9	2/24/17 ¹	4Q16 and FY16 Form 10-K	Filed Form 10-K stating "Apache now believes the drilling locations at Alpine High will exceed the 2,000 to 3,000 previously announced." ¶225
10	3/27/17	Scotia Howard Weil 2017 Energy Conference Presentation	Apache presented at Scotia Howard Weil 2017 Energy Conference and presented slides which stated that Apache had confirmed that Alpine High was a "highly economic wet play gas with more than 3000 locations" and that it had "excellent fully-burdened economics," i.e., that it was profitable even when factoring in all infrastructure costs, including both drilling and transport costs. ¶227

¹ The Complaint states that the 2016 Form 10-K was filed on February 23, 2017 (Complaint ¶225); however, according to SEC's website it was filed on February 24, 2018.

Appendix C – Alleged Misrepresentations Made During the Alleged Class Period

No.	Date	Event	Alleged Misrepresentation from the Complaint
11	5/4/17	1Q17 Financial Results Press Release & Earnings Conference Call	<p>Apache issued a press release in which Defendant Christmann is quoted as stating: “At Alpine High, testing and delineation have continued with strong results that reinforce our confidence in this world-class resource play.” ¶229</p> <p>During the earnings conference call, Christmann reiterated claims that the test wells had “proven” Apache’s understanding of Alpine High as a “massive hydrocarbon resource,” stating: “[t]he performance of our first batch of test wells at Alpine High was on par with or better than longer-lateral, fully optimized wells in analogous shale resource plays, such as the SCOOP and the Marcellus. ... Since our original announcement, we have continued to delineate the play. The test wells drilled to date have proven much of what we anticipated for Alpine High.” ¶230</p> <p>Defendant Christmann further asserted that “our progress since the initial announcement, 8 months ago, has been exceptional. To date, we have confirmed a highly economic wet gas play with a minimum of 3,000 locations. The economics of the wet gas portion of Alpine High are greatly enhanced by its oil content and the high-quality NGLs demonstrated in many of our test wells to date.” Christmann also reiterated that the test wells he had previously announced had only “confirmed” his bold claims: “When we announced Alpine High, we released data on nine test wells. The results of these wells, coupled with the geologic and reservoir evaluation work completed at that time, confirmed a world-class resource with an estimated 75 Tcf of gas and 3 billion barrels of oil in place in the Woodford and Barnett formations alone.” ¶231</p> <p>Defendant Sullivan similarly touted the results from test wells at Alpine, stating “The result[s] we see in our test wells at Alpine High continue to give us confidence that this will be one of the lowest cost wet gas plays in North America.” ¶232</p> <p>“[t]he results of [their initial test] wells, coupled with the geologic and reservoir evaluation work completed</p>

Appendix C – Alleged Misrepresentations Made During the Alleged Class Period

No.	Date	Event	Alleged Misrepresentation from the Complaint
			<p>at that time” had “confirmed” their claims about the recoverable oil and gas at Alpine High ¶234</p> <p>Apache reported findings from two new wells: Chinook 101AH and Blackhawk 5H. Christmann said that Chinook 101AH and Blackhawk 5H had “achieved higher 24-hour oil I[nitial] P[roduction] [rates] and higher oil cuts than any of the wells drilled,” and stated that this “further validates our geologic and thermal maturity models, which predicted that the source rock would produce more oil and higher BTU gas at shallower depths.” Defendant Sullivan similarly touted these wells, stating that the Chinook 101AH well had “produced at a peak 24-hour rate of approximately . . . 620 barrels of oil,” calling it “an excellent result.” Sullivan further highlighted that the Blackhawk 5H had “produced at a peak 24-hour rate of 742 barrels of oil.” ¶235</p> <p>Apache released investor presentation slides in which Blackhawk 5H purportedly had the “Highest Oil Yield To Date in Barnett” with a 24-hour initial production rate of 742 barrels per day, and Chinook 101AH purportedly had the “[h]ighest oil yield to date for a Woodford target,” with 24-hour initial oil production rate of 620 barrels per day. ¶236</p>
12	5/4/17 ² (after-market)	1Q17 Form 10-Q	<p>Apache reiterated the statements from its press release about Blackhawk 5H and Chinook 101AH wells and that the “drilling test results at Alpine High continue to validate the low-cost, wet gas value of the play.”. ¶238</p>

² The Complaint states that the 1Q17 Form 10-Q was filed on May 5, 2017 (Complaint ¶238); however, according to SEC's website it was filed on May 4, 2017 after market hours.

Appendix C – Alleged Misrepresentations Made During the Alleged Class Period

No.	Date	Event	Alleged Misrepresentation from the Complaint
13	5/11/17	Annual Shareholder Meeting	Defendant Christmann highlighted Apache's "significant discovery at Alpine High," stating: "It's a field that will deliver incredible value to Apache and its shareholders for many, many years to come." Christmann further stated that "Alpine High brings to us decades of inventory. It puts Apache in one of the most exciting and competitive positions in the industry. Since our announcement last September, we have continued testing and delineation. We continue to see strong results that reinforce our confidence in this world-class resource play." Apache's accompanying slides also again touted "> 3,000 drilling locations" in the Alpine High. ¶239
14	5/15/17	Societe Generale Presentation	Apache presented slides identical to the press release on 5/4/17 concerning production statistics for Chinook 101AH and Blackhawk 5H. ¶241
15	5/23/17	UBS Global Oil and Gas Conference Presentation	Defendants repeated slides alleged in the press release on 5/4/17 concerning wells including Chinook 101AH and Blackhawk 5H. ¶241
16	8/3/17	2Q17 Financial Results Press Release & Earnings Conference Call	<p>The press release noted that Apache had "[c]ompleted its first appraisal wells in the oil window of the Wolfcamp formation at Alpine High, providing further confirmation of an oil play and supporting hundreds of additional drilling locations." ¶243</p> <p>Defendant Christmann highlighted Alpine High stating "we continue to be very confident in our more than 3,000 wet gas well location count, which remains highly economic at current or even lower prices." During the call, Christmann also touted "hundreds of locations in the Wolfcamp so that will be oil locations." ¶244</p>
17	10/9/17 (after-market)	Alpine High Update Call and Web Presentation	Apache posted a pre-recorded update call in which Defendant Christmann highlighted the economic prospects at Alpine High, stating: "We have an extremely large wet gas play with over 3,500 highly economic locations," adding that "The economics of this play are driven by the low cost and the tremendous volumes of oil and NGLs." ¶247

Appendix C – Alleged Misrepresentations Made During the Alleged Class Period

No.	Date	Event	Alleged Misrepresentation from the Complaint
			<p>Defendant Sullivan similarly stated that the Alpine High was “three separate hydrocarbon plays: an extremely large and highly economic wet gas play, a smaller but also economically compelling dry gas play, and an emerging oil play.” ¶248</p> <p>Sullivan also specifically claimed that there were “455 million barrels” of recoverable oil across the entire Alpine High play: “The weighted average typical Alpine High wet gas well is estimated to produce 13.3 Bcfe of hydrocarbons, of which 6% is oil. The recoverable oil volume is 130,000 barrels per well and 455 million barrels of oil for the entire project based on 3,500 wet gas locations. This would yield a 13.4 [%] recovery factor on the 3 billion barrels of stated original oil in place.” ¶248</p> <p>Sullivan also again touted Alpine High’s numerous oil drilling locations, stating that, in the Wolfcamp and Bone Springs formations, “[Apache] can safely say that we have at least 500 economic [oil] well locations at this time.” Additionally, the slides accompanying the call repeatedly touted a newly increased “Current Location Count of 5,000+.” ¶248</p> <p>Defendants also introduced new highly specific claims about the economics of a “typical well” in the “wet gas play” at Alpine High, and how highly profitable this “typical well” (which it also called a “midrange well”) would be, as these wells would produce anywhere from 9 BCFE to 15 BCFE of hydrocarbons, including substantial amounts of both wet gas and oil. ¶250</p>
18	11/2/17	3Q17 Earnings Conference Call	<p>Defendant Christmann insisted that that it would be “less than two years” before cash flow at the play would be equal to or exceed costs: “if we just take a single rig at Alpine High, it’s less than 2 years before it’s self-funding...And that’s fully burdened with infrastructure and midstream spend.” ¶252</p>
19	2/22/18	4Q17 and FY17 Earnings Conference Call	<p>Apache held an investor conference call during which Defendant Christmann reiterated his bold claims about Alpine High and its transformational nature for Apache, stating: “[A]t Alpine High, we are building out a world-class resource play that will change the</p>

Appendix C – Alleged Misrepresentations Made During the Alleged Class Period

No.	Date	Event	Alleged Misrepresentation from the Complaint
			<p>course of Apache. The expanse of the opportunity in terms of acreage and hydrocarbon column will drive capital investment, and very soon, free cash flow for decades to come.” Christmann touted Apache’s expected near future production and growth rate at Alpine High, stating that “[b]y 2020, average daily production is expected to be between 160,000 and 180,000 BOEs a day, which represents a compound annual growth rate in excess of 150%.” ¶254</p> <p>Defendants assured reassured investors that Alpine High would be profitable and successful even at extremely low commodity prices. For example, Christmann stated that “[i]n the context of today’s commodity price, we acknowledge that funding a wet gas play is a bit contrarian, but it is justified by the long-term scale and return potential even at lower gas prices.” Similarly, in response to an analyst question seeking further reassurances as to whether Apache had “looked at ...some of the downside cases” involving low gas prices</p> <p>Defendant Christmann unequivocally assured investors that there was nothing to worry about, because Alpine High “is going to really hum below \$2 [prices] on the gas side [,]” and “we’ve run many cases on the downside. We would not be making this type of investment on the midstream or the upstream side if we thought there was a sensitivity that was close to anything that would come into making it not work under very, very low gas and NGL and oil prices.” ¶256</p>
20	2/22/18 ³ (after-market)	4Q17 and FY17 Form 10-K	<p>Apache filed a Form 10-K stating “Apache has identified over 3,500 economic drilling locations in a wet gas play and over 1,000 locations in a dry gas play at Alpine High. The Company is also working to delineate an emerging oil play at Alpine High, with at least 500 locations already identified.” ¶258</p> <p>Form 10-K also stated that “Combined with multi-well pad drilling and revenue uplift expected from oil and NGLs present in the wet gas play, Alpine High is</p>

³ The Complaint states that the 2017 Form 10-K was filed on February 23, 2018 (Complaint ¶258); however, according to SEC's website, it was filed on February 22, 2018 after market hours.

Appendix C – Alleged Misrepresentations Made During the Alleged Class Period

No.	Date	Event	Alleged Misrepresentation from the Complaint
			anticipated to generate strong cash margins and a competitive recycle ratio [a measure of profitability per unit of oil or gas] when compared to other Permian operations.” ¶258
21	2/26/18	DUG Executive Conference Presentation	Apache again touted its purported “5,000+ locations identified to date,” “highly economic wet gas play,” and “proven oil upside” at Alpine High. ¶259
22	3/26/18	March/April Investor Presentation	Apache made an identical statement as in the DUG conference. ¶259
23	5/3/18	1Q18 Earnings Conference Call	<p>Apache held an investor conference call where Defendant Christmann assured “there’s a lot of proven oil, we’ve shown that.” ¶261</p> <p>Defendant Christmann stated that “in terms of drilling inventory, recall that we increased our risk[ed] location count to more than 5,000 locations at our October webcast update.” Christmann also told investors that, “we are confident that as field delineation and development progresses, the risk[ed] location count [i.e., number of economic well sites] will increase substantially over the next several years.” ¶262</p>
24	5/30/18	Annual Bernstein Strategic Decisions Conference Presentation	Apache reiterated that it had “5,000+ locations identified to date,” a “highly economic wet gas play,” and “proven oil upside,” at Alpine High. ¶263
25	6/5/18	June Marketing Presentation	Apache made an identical statement as the one made 5/30/18 reiterating that it has “5000+ locations identified to date” a “highly economic wet gas play,” and “proven oil upside,” at Alpine High. ¶263
26	8/2/18	2Q18 Earnings Conference Call	Apache held an investor conference call during which Defendant Christmann reiterated Apache’s claims of more than 5,000 viable drilling locations identified at Alpine High: “in terms of drilling inventory, our location count today stands at more than 5,000 wells,” and further told investors that this count would only

Appendix C – Alleged Misrepresentations Made During the Alleged Class Period

No.	Date	Event	Alleged Misrepresentation from the Complaint
			increase, stating that “[l]anding zone and spacing tests thus far have confirmed that this inventory count is conservative, based on original assumptions.” ¶265
27	8/8/18 (after-market)	Conference call with investors and analysts	Apache held an investor conference call during which Defendant Christmann assured investors that “Alpine High is on a tremendous growth path,” and reaffirmed Defendants’ claims, made from the outset of the Class Period, that the play contained an “estimated resource in place of 75 Tcf of gas and 3 billion barrels of oil in just 2 of the 5 proven hydrocarbon-bearing formations,” and “more than 5,000 identified drilling locations.” ¶266
28	9/21/18	CEO interview on Bloomberg Commodities Edge	Defendant Christmann discussed Alpine High stating that “[t]here is a very large wet gas play and there will be a lot of rich gas but there will also be a lot of oil,” and that, “[w]e’ve proven there’s oil ... a lot of rich gas.” ¶267
29	2/28/19 (after-market)	4Q18 and FY18 Form 10-K	Apache filed 2018 Form 10-K which reiterated past claims about Alpine High location counts, stating that “Apache has identified over 3,500 economic drilling locations in a wet gas play and over 1,000 locations in a dry gas play at Alpine High.” Additionally, the 2018 10-K highlighted the purported 96% “success rate” Apache had experienced in drilling wells at Alpine High (meaning purportedly only 4% of wells had failed to produce meaningful quantities of oil or gas). ¶270
30	5/1/19 ⁴ (after-market)	1Q19 Financial Results Press Release	Apache issued a press release in which Apache stated that “In the Permian, we are poised to deliver attractive oil growth and a substantial cash flow uplift at Alpine High in the second half of the year.” ¶273
31	5/2/19	1Q19 Earnings Conference Call	During the earnings call, Defendant Christmann assured that Apache was having success by spacing its wells further out on certain well pads, meaning fewer wells per pad. Christmann also assured that that Apache’s drilling location count not only would not be

⁴ The Complaint states that the press release was issued on May 2, 2019 (Complaint ¶273); however, according to a GlobeNewswire article dated May 1, 2019, the press release was issued on May 1, 2019 after market hours.

Appendix C – Alleged Misrepresentations Made During the Alleged Class Period

No.	Date	Event	Alleged Misrepresentation from the Complaint
			reduced, but would likely <i>increase</i> , stating that “the last location count we put out was fall of ‘17, I think, October of ‘17. And we’re still in a position where location count would go up given the assumptions we’ve got in place,” and adding “we’re very confident in those numbers. And you’re strong performance.” ¶274
32	5/14/19 ⁵	Bloomberg story quoting Apache spokesperson	Bloomberg published a story titled "Apache bets big on Permian gas liquids". An Apache corporate spokesperson was quoted in the article as stating “Investors do not yet have an appreciation for the potential cash flow generation from the liquids play at Alpine High,” and that “[e]valuation of the oil play at Alpine High will continue to evolve, but our view of 3 billion bbl of associated oil in place in just the Woodford and Barnett remains unchanged.” ¶275
33	7/31/19 ⁶ (after-market)	2Q19 Financial Results Press Release	Apache issued a press release noting that Alpine High’s production has been disappointing, purportedly due to “delays” in bringing wells online, but assured investors that it would catch up in the second half of 2019 and meet its oil production plan as well. Specifically, Defendant Christmann was quoted as saying: “We will catch up in the second half of 2019 and exit the year with oil production on plan and with strong momentum heading into 2020.” ¶278
34	8/1/19	2Q19 Earnings Conference Call	In its earnings call, Defendant Christmann stated “we like the asset [referring to Alpine High]. It’s a large resource as we’ve proven. There is tremendous rich-gas potential.” ¶279

⁵ The Complaint states that the Bloomberg story was published on May 15, 2019 (Complaint ¶275); however, according to Bloomberg, it was published on May 14, 2019.

⁶ The Complaint states that the press release was issued on August 1, 2019 (Complaint ¶278); however, according to a GlobeNewswire article dated July 31, 2019, the press release was issued on July 31, 2019 after market hours.

Exhibit 3

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF TEXAS
HOUSTON DIVISION

IN RE APACHE CORP. SECURITIES
LITIGATION

Case No. 4:21-cv-00575

EXPERT REPLY REPORT OF ZACHARY NYE, PH.D.

August 11, 2023

Table of Contents

I.	Background and Qualifications.....	1
II.	Scope of Engagement	1
III.	Bases for Opinions.....	2
IV.	Ms. Allen’s Price Impact Analysis Is Incomplete and Unreliable Given Her Failure to Analyze “Front-End” Price Impact—That Is, Whether the Alleged Misrepresentations Affected Apache’s Stock Price When Made	3
V.	Ms. Allen Has Adopted an Incorrect and Overly Narrow Interpretation of Lead Plaintiffs’ Allegations in This Matter	14
VI.	Ms. Allen Fails to Demonstrate a Lack of Price Impact Associated With the April 23, 2019 Alleged Corrective Disclosure	18
VII.	Ms. Allen Fails to Demonstrate a Lack of Price Impact Associated With the October 25, 2019 Alleged Corrective Disclosure	30
VIII.	Ms. Allen Fails to Demonstrate a Lack of Price Impact Associated With the March 16, 2020 Alleged Corrective Disclosure	40
IX.	Ms. Allen’s “Big Picture Analysis” Fails to Demonstrate That the Alleged Misstatements and Omissions Lacked Price Impact During Her “Focus Period”	48
X.	Ms. Allen Improperly Conflates Statistical Significance and Price Impact	55
XI.	Use of a Multi-Day Event Window Is a Reliable and Scientific Methodology for Estimating Price Impact.....	63
XII.	Ms. Allen’s Alternative Event Study Does Not Have “Higher Explanatory Power”	67

I. Background and Qualifications

1. Previously in this matter, I submitted the Expert Report of Zachary Nye, Ph.D., dated April 7, 2023 (the “Nye Report”), in which I opined that:

- i. The common stock of Apache Corporation (“Apache” or the “Company”) traded in an efficient market during the period from September 7, 2016 through March 13, 2020, inclusive (the “Class Period”).¹
- ii. Damages under §10(b) of the Securities Exchange Act of 1934 (“Exchange Act”), and Rule 10b-5 promulgated thereunder by the SEC, can be calculated using a method that is common to each Class member and in a manner consistent with Lead Plaintiffs’ theory of liability, for investors who purchased or otherwise acquired Apache stock during the Class Period.^{2, 3}

2. My qualifications are set forth in ¶1 of the Nye Report. My curriculum vitae, which includes my academic research, publications in the past ten years, and prior expert testimony in the past four years, is attached hereto as Exhibit 1.

3. My current hourly rate is \$990. In preparing this Report and the Nye Report, I have received assistance from individuals at SCG, who worked under my direction; their fees charged for this project are their standard hourly rates. Neither my compensation nor that of any individual at SCG is contingent on the outcome of this litigation.

II. Scope of Engagement

4. In connection with preparing this Report, Counsel for Lead Plaintiffs in this matter, Plymouth County Retirement Association and the Trustees of the Teamsters Union No. 142 Pension Fund (“Lead Plaintiffs” or “Plaintiffs”), have asked me to reply to the Expert Report of Lucy P. Allen, dated June 16, 2023 (the “Allen Report”), in which Ms. Allen provides certain

¹ Nye Report, §VI.

² Nye Report, §VII.

³ The claims in this action are set forth in the Consolidated Class Action Complaint, dated December 17, 2021 (the “Complaint”).

opinions on price impact associated with the alleged misrepresentations during a portion of the Class Period.^{4, 5}

III. Bases for Opinions

5. My opinions expressed herein are based upon my professional knowledge and experience, my review of documents and information relevant to this matter, and the analyses described in this Report and in the Nye Report. Documents, data, and other information that I have relied upon as bases for my opinions are cited in this Report and in the Nye Report. Such documents and information are typically relied upon by financial experts in securities class actions and by financial economists in their research.

6. Counsel for Plaintiffs have informed me that the record in this matter continues to be developed and that fact discovery is ongoing. To the extent relevant, I would expect to review additional information that may become available through discovery as well as the reports and depositions of other expert witnesses. The opinions offered in this Report are subject to refinement or revision based on continuing analysis of the documents and information listed above, as well as new or additional information that may be provided to or obtained by me in the course of this matter.

⁴ Ms. Allen was deposed in this matter on July 27, 2023 (the “Allen Deposition”).

⁵ Ms. Allen does not contest my opinion that Class-wide damages can be calculated using a method that is common to each Class member and in a manner consistent with Lead Plaintiffs’ theory of liability. Nor does Ms. Allen contest my opinion that Apache common stock traded in an efficient market during the Class Period. Instead, Ms. Allen was “asked to assume Plaintiffs’ claim of market efficiency.” (*See* Allen Report, ¶1.)

IV. Ms. Allen’s Price Impact Analysis Is Incomplete and Unreliable Given Her Failure to Analyze “Front-End” Price Impact—That Is, Whether the Alleged Misrepresentations Affected Apache’s Stock Price When Made

7. In her Report, Ms. Allen states that she was “asked by counsel for Defendants to analyze whether there is price impact from the alleged misrepresentations that Plaintiffs claim inflated the stock price of [Apache].”⁶ She further states that she was “asked to focus [her] analysis on the time period between February 23, 2018 and March 13, 2020 (the ‘Focus Period’) and analyze whether there is a link between any of the alleged misrepresentations made during the alleged ‘Class Period’ (the period between September 7, 2016 and March 13, 2020) and Apache’s stock price during the Focus Period.”⁷ As part of that assignment, Ms. Allen admits that she only “analyzed the market reaction following the alleged misrepresentations during the Focus Period.”⁸ She also purportedly analyzed only “the three alleged corrective disclosures during the Focus Period, i) April 23, 2019, ii) October 25, 2019, and iii) March 16, 2020, and whether there is any link to any of the alleged misrepresentations.”⁹ Notably, Ms. Allen does **not** offer any opinion pertaining to the alleged misrepresentations or corrective disclosures issued during the portion of the Class Period preceding her limited Focus Period—*i.e.*, beginning with the start of the Class Period on September 7, 2016, when Apache first announced its discovery of a “world class” and “significant new resource play” in an area of the Permian Basin known as Alpine High, through February 22, 2018, the date of the second alleged corrective disclosure (the “Pre-Focus Period”).

⁶ Allen Report, ¶1.

⁷ Allen Report, ¶1.

⁸ Allen Report, ¶35.

⁹ Allen Report, ¶1.

8. As described in the Nye Report, “[p]rice impact can be shown either by an increase in price following a fraudulent public statement or a decrease in price following a revelation of the fraud.”¹⁰ Ms. Allen acknowledges that “the price impact of an alleged misrepresentation can be analyzed in at least two ways: (1) directly by analyzing the market reaction following an alleged misrepresentation, including analyzing the stock price movement and examining market and analyst commentary following the alleged misrepresentations, or (2) indirectly by analyzing the market reaction to a disclosure that is corrective of an alleged misrepresentation.”^{11, 12}

Conspicuously, however, Ms. Allen omits any analysis of the how the alleged misrepresentations and corrective disclosures affected Apache’s stock price during the Pre-Focus Period.¹³ In fact, her price impact analysis, by design, fails to address 14 of the 17 alleged misrepresentation dates,^{14, 15} and the two alleged corrective disclosures,¹⁶ that occurred prior to February 23, 2018.

¹⁰ Nye Report, footnote 130, quoting *Erica P. John Fund, Inc. v. Halliburton Co.*, 718 F.3d 423, 434 (5th Cir. 2013), *vacated and remanded on other grounds*, *Halliburton Co. v. Erica P. John Fund, Inc.*, 134 S. Ct. 2398 (2014) (“*Halliburton II*”).

¹¹ Allen Report, ¶20.

¹² See Allen Deposition, 50:25–51:10 (confirming that a price reaction to an initial misstatement is evidence of price impact); 53:1–10 (same); 55:21–24 (also confirming that a price reaction to a corrective disclosure is evidence of price impact); 56:3–9 (same).

¹³ See Allen Deposition, 12:14–13:6 (confirming that Ms. Allen has not conducted any analysis of price impact over the portion of the Class Period that predates the Focus Period); 75:18–25 (same); 106:17–24 (same).

¹⁴ See Complaint, ¶¶191–257, for a description of the 17 alleged misrepresentation dates that occurred between September 7, 2016 and February 22, 2018.

¹⁵ Ms. Allen briefly discusses the alleged “misstatements on February 23, 2017, August 3, 2017, and February 22, 2018 about Alpine High being economic at low commodity prices.” (See Allen Report, ¶43.)

¹⁶ The first alleged corrective disclosure occurred after market close on October 9, 2017, when “Apache hosted a webcast to provide the Company’s first ‘detailed review of the [] progress we are making at Alpine High’ since announcing the ‘discovery’ on September 7, 2016,” and “revealed for the first time that it was experiencing significant problems extracting oil from the Woodford and Barnett formations within Alpine High.” According to the Complaint, “[a]s a

9. Most notably, Ms. Allen simply ignores Plaintiffs’ allegations of price impact at the beginning of the Class Period, when “Apache made a grand announcement on September 7, 2016, hyping Alpine High’s attributes, performance, and commercial viability.”^{17, 18} Nonetheless, she still manages to opine that “a detailed analysis of the Focus Period shows no price impact and no link with any of the alleged misrepresentations made during the [entire] alleged Class Period.”¹⁹ However, Ms. Allen fails to demonstrate a complete lack of price impact during the Class Period because her Report nowhere addresses whether any of the alleged misrepresentations made during the Pre-Focus Period positively impacted the price of Apache’s common stock, or whether any of the alleged corrective disclosures made during the Pre-Focus

direct result of the October 9, 2017 partial corrective disclosure revealing Alpine High’s significant oil production problems, Apache’s stock price declined by more than 7% in a single day, falling from a close of \$45.85 per share on October 9, 2017 to close at just \$42.46 per share on October 10, 2017.” (See Complaint, ¶¶304, 305.)

The second alleged corrective disclosure occurred on February 22, 2018, when “Apache issued a pre-market press release announcing the Company’s earnings for the fourth quarter and full year of 2017,” and “also announced disappointing 2018 production growth guidance.” According to the Complaint, “[a]s a direct result of the February 22, 2018 partial corrective disclosure regarding lower than expected BOE production guidance for Alpine High, coupled with an increasingly unfavorable Alpine High gas/oil ratio and prolonged production time frame, Apache’s stock price plummeted to its lowest point in nearly 15 years, falling from \$37.20 per share on February 21, 2018 to close at \$34.85 per share on February 22, 2018, a decline of more than 6%.” (See Complaint, ¶¶307, 308.)

¹⁷ Memorandum and Recommendation of United States Magistrate Judge Andrew M. Edison, filed September 15, 2022, Dkt. 76, p. 7. See also Complaint, ¶¶191–203.

¹⁸ See Allen Deposition, 77:4–25 (confirming that Ms. Allen did not analyze price impact associated with Defendants’ alleged misstatements made on September 7, 2016); 119:16–23 (confirming that Ms. Allen did not analyze whether Apache’s stock price experienced a statistically significant increase in response to the September 7, 2016 alleged misrepresentations).

¹⁹ Allen Report, §VII (emphasis added and title capitalization omitted).

Period fully dissipated all of the positive price impact created by the Pre-Focus Period alleged misstatements.²⁰

10. According to Ms. Allen’s “review of the Complaint, [she] do[es] not understand Plaintiffs to be claiming that the alleged misrepresentations **during the Focus Period** increased the alleged inflation in the stock price when made.”²¹ However, while one may not expect Apache’s stock price to have increased significantly following the Focus Period misrepresentations, many of which allegedly served to **maintain** the then-existing level of price inflation by “emphatically reassur[ing] investors with promises of a ‘world class resource play [at Alpine High] that will change the course of Apache,’”²² this is certainly not a reasonable inference with respect to Lead Plaintiffs’ allegations regarding Defendants’ misrepresentations at the start of the Class Period, on September 7, 2016. Specifically, in the Complaint, Plaintiffs detail how: (i) “Apache’s stock price immediately rallied on the news of the ‘world class’ Alpine High discovery, soaring 14% in the first two days after the announcement, reaching \$59.33 per share on September 8, 2016—its highest price in over a year”;²³ (ii) “[a]nalysts and the financial press credited Defendants’ positive statements and celebrated the discovery”;²⁴ and (iii) “[t]he financial press, industry

²⁰ See Allen Deposition, 76:1–4 (confirming that Ms. Allen is not expressing an opinion that no price impact existed during the Pre-Focus Period); 76:19–22 (confirming that Ms. Allen did not analyze whether the two alleged corrective disclosures made during the Pre-Focus Period demonstrate price impact for the Pre-Focus Period misstatements); 76:23–77:1 (confirming that Ms. Allen did not analyze whether there was front-end price impact for any of the Pre-Focus Period misstatements); 78:1–7 (confirming that Ms. Allen has not analyzed whether any price inflation that came into Apache’s stock price during the Pre-Focus Period had fully dissipated prior to the start of the Focus Period).

²¹ Allen Report, ¶35 (emphasis added).

²² Complaint, ¶80.

²³ Complaint, ¶39.

²⁴ Complaint, ¶40.

press, and mainstream media also praised Apache’s Alpine High discovery,” including “the ideal economics of Alpine High Defendants had touted.”²⁵

11. Indeed, Plaintiffs effectively employ Ms. Allen’s own methodology for assessing price impact—*i.e.*, “analyzing the stock price movement and examining market and analyst commentary following the alleged misrepresentations”²⁶—to articulate a theory of liability in which Defendants’ alleged misrepresentations caused Apache’s stock price to increase on and shortly after September 7, 2016, thereby creating price inflation at the outset of the Class Period. As stated in the Complaint, “[t]hese misstatements created in the market an unrealistically positive assessment of Apache’s prospects at Alpine High and, consequently, of its business prospects as a whole, thus artificially inflating the Company’s stock price.”²⁷ Ms. Allen did not analyze, and therefore offers no rebuttal to, these allegations of positive “front-end” price impact.

12. Moreover, Plaintiffs allege that, “[t]hroughout the rest of 2018 and into 2019, Defendants continued to relentlessly promote Alpine High as a transformative discovery for Apache, while consistently waving off doubts about the play’s oil or wet gas potential and profitability,”²⁸ thereby “maintain[ing] artificial inflation in the price of Apache common stock [during the Focus Period].”²⁹ Without analyzing the extent to which the alleged misrepresentations made prior to February 23, 2018 impacted Apache’s stock price, Ms. Allen has no basis to opine, nor does she opine, that the alleged artificial inflation in Apache’s stock price suddenly vanished at the onset of her Focus Period. Again, Ms. Allen does not even consider the price impact of the two

²⁵ Complaint, ¶41.

²⁶ Allen Report, ¶20.

²⁷ Complaint, ¶190.

²⁸ Complaint, ¶83.

²⁹ Complaint, ¶301.

alleged partial corrective disclosures that occurred during the Pre-Focus Period (*i.e.*, October 9, 2017 and February 22, 2018), much less analyze whether these corrective disclosures fully dissipated all of the positive price impact created by the prior alleged misrepresentations made during the Pre-Focus Period (which she also did not consider). Given that Ms. Allen's price impact analysis is deliberately and demonstrably incomplete, she cannot reliably opine on whether there is "a link between any of the alleged misrepresentations made during the alleged 'Class Period' ... and Apache's stock price during the Focus Period."³⁰

13. Consistent with Plaintiffs' allegations, Exhibit 11B to the Nye Report shows that Apache stock did in fact experience three consecutive statistically significant price increases following Defendants' initial misrepresentations regarding Alpine High on September 7, 2016.

Specifically, under my event study, Apache's stock price increases on September 7, 8, and 9, 2016 are statistically significant at the 99.96%, 97.58%, and 98.18% confidence levels, respectively.³¹ Similarly, Ms. Allen's alternative event study finds statistically significant price increases for these days at the 99.92%, 98.90%, and 97.63% confidence levels, respectively.³²

My review of news and analyst reports during this period also supports Plaintiffs' allegations that investors received the announcement of Alpine High positively. Analysts, along with financial news outlets, attributed the increase in Apache's stock price to the Alpine High announcement, with several directly linking this positive price impact from the Alpine High announcement to specific false statements alleged in the Complaint (illustrated below in italics).³³ For example:

³⁰ Allen Report, ¶1.

³¹ Nye Report, Exhibit 11B, p. 1.

³² Source: NERA_019129.

³³ Several analysts also increased their price targets for Apache stock following the announcement. (*See Exhibit 2 which lists analysts' price targets and rating actions before and after September 7, 2016, as reported by Bloomberg.*)

- **Associated Press (9/7/2016):** “Apache shares rose \$3.46 to close at \$55.13, but at one point **jumped 14 percent** when news of the possible [Alpine High] find began to surface.”³⁴
- **Bloomberg First Word (9/7/2016):** “**Apache shares up 10%** after confirming discovery of significant new resource play, the ‘Alpine High,’ in southern portion of Delaware Basin, primarily in Reeves County, Texas; analyst see update as a catalyst, however market may need to see longer-term results.”³⁵
- **BMO Capital Markets (9/7/2016):** “Apache’s announcement of having secured 307,000 net acres in the Southern Delaware Basin could represent a significant source of future liquids-rich inventory, but little is known about the area termed Alpine High. While peers are paying \$20-40,000 per acre in more established Permian areas, Apache accumulated this position at only \$1,300 per acre. ... **Apache’s stock price already reflects \$1.3B of value for Alpine High given today’s outperformance.**”³⁶
- **Cowen (9/7/2016):** “APA announced the new Alpine High rich gas (~1300 BTU) play in the S Delaware. The wells have strong economics compared to APA’s current US portfolio This play adds ~\$3/sh to our NAV since we were already including some value for S Delaware.”³⁷
- **Credit Suisse (9/7/2016):** “Raising Target Price \$4/sh: Clearly the addition of the Alpine High resource is large and extends APA’s drilling inventory. ... There is further upward bias for the Alpine High over time.”³⁸
- **Deutsche Bank (9/7/2016):** “APA announced discovery of the Alpine High play in southern Reeves Co across 307,000 contiguous net acres (~70% of APA’s Del footprint) enhancing visibility into long-term onshore resource life (with the Woodford/Barnett pay zones to support 6 rigs over 20+ yrs). We see the discovery providing an incremental \$4/sh of risked resource value to our NAV (ex BS/Wolfcamp) with upside from further delineation activities.”³⁹

³⁴ *Associated Press*, “Apache may have struck big in West Texas,” September 7, 2016, 6:29 PM (emphasis added).

³⁵ *Bloomberg First Word*, “APACHE STREET WRAP: New Play Adds ‘Fuel to the Bullish Fire,’” September 7, 2016, 9:50 AM (emphasis added).

³⁶ BMO Capital Markets, “Apache, High on the Alpine,” September 7, 2016, 7:39 PM (emphasis added).

³⁷ Cowen and Company, “Apache Corporation, Alpine High,” September 7, 2018.

³⁸ Credit Suisse, “Apache Corp., Unveils New, Large Wet Gas Play in Texas, Drills Better Wells in Midland,” September 7, 2016.

³⁹ Deutsche Bank, “Apache Corp., Addressing Onshore Resource Depth,” September 7, 2016.

- **Dow Jones Institutional News (9/7/2016):** “Shares of Apache (APA) are soaring today after the oil & gas driller announced a major oil find in the Delaware basin. ... Shares of Apache have jumped 8.6% to \$56.12 at 10:12 a.m. today, while the Energy Select Sector SPDR ETF (XLE) has advanced 0.5% to \$70.44.”⁴⁰
- **Morgan Stanley (9/7/2016):** “APA announces 2-3k potential locations in early stage wet gas play: Alpine High in Delaware basin. The discovery improves APA’s inventory depth and informs a key debate concerning depth and quality of its Permian position. We add \$5/sh to our NAV and recognize a wide range of potential outcomes. ... Raising our price target to \$63 from \$61 to reflect the NAV accretion from Alpine High.”⁴¹
- **Reuters (9/7/2016):** “Apache’s shares spiked as much as 14 percent to \$58.99 in early trading after the company said it had assembled contiguous parcels of more than 300,000 acres for \$1,300 an acre in the field it calls ‘Alpine High,’ most of which is in Reeves County, Texas.”⁴²
- **RBC (9/7/2016):** “Management has drawn a comparison with Alpine High to the wet Marcellus, condensate Eagleford, and SCOOP plays. However, the company thinks Alpine High is advantaged with better geology including lower clay content, higher porosity, and greater thickness. ... We expect this announcement to generate a significant amount of investor interest. For APA it has the potential to be a major long-term growth development.”⁴³
- **Seaport Global (9/7/2016):** “Takeaway: The Permian unveiling we’ve been waiting for. Since this spring, we’ve been anticipating a larger Permian unveiling in which APA announces the results of its wildcatting activity in SW Reeves Co. and defines its core Midland and Delaware acreage (link to our prior note). While the scope of APA’s core acreage in the Midland (~193K net acres) and Delaware (~12K net acres in its focus areas) are on par with our previous expectations, the scale and associated economics of its Alpine High discovery (primarily located in SW Reeves Co.) comes as a

⁴⁰ Dow Jones Institutional News, “Apache: Now That’s an Gusher! -- Barron’s Blog,” September 7, 2016, 10:15 AM (emphasis added).

⁴¹ Morgan Stanley, “Apache Corp., Resource Response in Alpine High,” September 7, 2016, 11:48 PM.

⁴² Reuters, “UPDATE 2-A resilient Apache Corp strikes oil in overlooked Texas field,” September 7, 2016, 11:56 AM (emphasis added).

⁴³ RBC Capital Markets, “APA - New Permian Resource Play Dubbed ‘Alpine High’,” September 7, 2016, 8:47 AM (emphasis added).

surprise – while it’s still early innings (only ~19 wells drilled to date), APA’s preliminary look at Alpine High economics look encouraging.”⁴⁴

- ***TheFlyontheWall.com* (9/7/2016):** “Apache gaps and runs higher on new resource play in Southern Delaware basin.”⁴⁵
- ***The Times* (9/7/2016):** “News of the field, in an area that had been largely ignored by geologists, sent shares in Apache soaring by 13 per cent yesterday.”⁴⁶
- **Simmons & Company (9/7/2016):** “APA out with big news this morning as the company announced a new play in the Southern Delaware Basin called the Alpine High (located on the southwestern side of Reeves county).”⁴⁷
- **UBS (9/7/2016):** “APA announced the *discovery of a significant new resource play (the ‘Alpine High’)* in the southern Delaware Basin (primarily in southwest Reeves County) where it has accumulated 307,000 net acres over the course of 2015-16 for ~\$1,300/net acre. ... We’ve raised our NAV by ~\$13/share to \$53.70/share. Roughly ~\$10/share of our NAV increase is attributed to the new Alpine High play.”⁴⁸
- **Wells Fargo (9/7/2016):** “Big discovery announced by APA this morning known as Alpine High in Southern Reeves where the Company has accumulated 307K net contiguous acres. Lots of speculation around the play potential, but we see this providing significant upside potential to shares from a NAV perspective. Granted the details are somewhat limited at this stage, but our first take is positive given greater Permian resource inventory, more visibility on a production ramp into 2017, and emerging credibility for the management team. ... Based on the current strip, we shake out around \$2.5MM PV-10 per well which based on the 2,000-3,000+ location range implies \$8-\$13 per share upside potential.”⁴⁹

⁴⁴ Seaport Global, “SGS Dirty Energy Daily,” September 7, 2016.

⁴⁵ *TheFlyontheWall.com*, “Apache gaps and runs higher on new resource play in Southern Delaware basin,” September 7, 2016, 9:36 AM.

⁴⁶ *The Times*, “Apache’s black gold in Texas,” September 7, 2016, 8:01 PM (emphasis added).

⁴⁷ Simmons & Company, Energy Specialist of Piper Jaffray, “Apache Corporation, Announces New Delaware Basin Play,” September 7, 2016.

⁴⁸ UBS, “Apache Corporation, Unveils New Gassy Play in the Southern Delaware Basin & Increases 2016 Capex; Raising 2P NAV,” September 7, 2016 (emphasis added).

⁴⁹ Wells Fargo, “Apache Corporation, APA: Thoughts On Alpine High Discovery,” September 7, 2016.

- **ACCESSWIRE (9/8/2016):** “Investors welcomed the news of the new discovery and this sentiment positively impacted the company’s shares. The company’s stock price jumped 6.70%, closing the trading session at \$55.13. A total volume of 14.58 million shares exchanged hands by the end of the day, which was higher than the three months average volume of 2.90 million shares.”⁵⁰
- **Credit Suisse (9/8/2016):** “The key point inside [about Alpine High] is that the low clay content and excellent porosity is why the rocks are so productive in a lower pressure and hence lower cost environment - which in turn is why the economics look so compelling. We ran the lower pressure type curve yesterday in our model with a more conservative cost per well to derive our \$4/sh uplift.”⁵¹
- **Houston Chronicle (9/8/2016):** “Apache said it believes it can get more out of Alpine High, and so did investors: Shares of Apache rose nearly 7 percent, or \$3.46, to close at \$55.13 Wednesday.”⁵²
- **Investor’s Business Daily (9/8/2016):** “[A]fter rising nearly 7% Wednesday, oil and gas producer Apache (NYSE:APA) tacked on another 7% after the company announced a significant discovery in a Texas shale formation *that could hold up to three billion barrels of oil and 75 trillion cubic feet of natural gas*.”⁵³
- **RBC (9/8/2016):** “We have increased our price target by \$2/share to \$62. Our new \$65 NAV now includes a bit over \$5/share for Alpine High but it could be worth \$10-15+/share over time if the play proves to be successful over a large portion of the acreage.”⁵⁴
- **SNL Energy Finance Daily (9/8/2016):** “Apache Corp. rose 6.70% in heavy trading to settle at \$55.13 at market close on Wednesday, Sept. 7, after saying

⁵⁰ ACCESSWIRE, “Blog Coverage Apache Hits the Biggest Oil Discovery in Southern Delaware Basin,” September 8, 2016 (emphasis added).

⁵¹ Credit Suisse, “Apache Corp., Alpine High Has Potential To Be A World Class Resource,” September 8, 2016.

⁵² Houston Chronicle, “Apache said it believes it can get more out of Alpine High, and so did investors: Shares of Apache rose nearly 7 percent, or \$3.46, to close at \$55.13 Wednesday,” September 8, 2016 (emphasis added).

⁵³ Investor’s Business Daily, “Stocks End Lower As Oil Rallies 5%; Apache Soars 14% In Two Sessions,” September 8, 2016 (emphasis added).

⁵⁴ RBC Capital Markets, “Apache Corporation, Lofty Prospects for Alpine High,” September 8, 2016, 10:11 AM.

that it found a *significant new resource play holding more than 75 Tcf of natural gas and 3 billion barrels of oil.*⁵⁵

- **Societe Generale (9/8/2016):** “John Chistmann and team have been at the helm 20 months, but they’ve executed a dramatic strategic corporate transformation in order to create long-term value. **The market reacted positively to the Alpine High** yesterday.”⁵⁶
- **The Oil Daily (9/8/2016):** “Apache’s shares caught a tailwind on Wednesday as the company announced the discovery of a ‘*significant new resource play*’ in a largely overlooked area of the red-hot Permian Basin.”⁵⁷
- **Seeking Alpha (9/8/2016):** “After surging nearly 7% yesterday, Apache (NYSE:APA) added another 7% in today’s trade following news of its major discovery in an overlooked corner of west Texas’ Delaware Basin that *could hold up to 3B barrels of oil and 75T cf of natural gas.*”⁵⁸
- **Houston Chronicle (9/9/2016):** “**Shares of Apache rose for the second straight day** following the company’s [Alpine High] announcement, or 14 percent in total.”⁵⁹
- **Omaha World-Herald (9/9/2016):** “Now [Alpine High] is reckoned by Apache - whose **shares rose as much as 13 percent Wednesday and were up an additional 7 percent Thursday** - to be worth anywhere from \$8 billion to \$80 billion, depending on actual drilling and production results.”⁶⁰
- **MarketWatch (9/10/2016):** “**Apache Corp. stock is among the top gainers this week** after the energy company revealed an ‘*immense*’ oil and gas reserve in a relatively unknown corner of west Texas. ... When Apache announced the discovery on Wednesday, the stock rose more than 7%. Weekly gains

⁵⁵ SNL Energy Finance Daily, “Wednesday’s Energy Stocks: Apache surges on major oil, gas find; Duke dips on Norway’s fund exclusion,” September 8, 2016 (emphasis added).

⁵⁶ Societe Generale, “Apache Corp, An organic, low cost, 15.5 BBOE Delaware resource capture could cause Street sentiment to change,” September 8, 2016, 12:09 AM (emphasis added).

⁵⁷ The Oil Daily, “Apache Touts New Delaware Basin Resource Play,” September 8, 2016 (emphasis added).

⁵⁸ Seeking Alpha, “Apache +15% in two days after ‘game-changer’ oil discovery,” September 8, 2016, 6:22 PM (emphasis added).

⁵⁹ Houston Chronicle, “West Texas discovery puts Apache back in game; Strategy of aggressive exploration goes against grain, analysts say,” September 9, 2016 (emphasis added).

⁶⁰ Omaha World-Herald, “Profits from Texas oil find could extend to Omaha; Northern Natural Gas has the pipelines, but railroads may benefit, too,” September 9, 2016 (emphasis added).

reached more than 14% on Friday, the stock's best weekly rise since mid March.”⁶¹

14. Thus, the undisputed economic evidence presented here, and in the following subsections, is strongly supportive of Plaintiffs’ allegations of positive “front-end” price impact as of the first day of the Class Period, which caused Apache’s common stock to trade at artificially inflated prices throughout the entire Class Period, until “the facts misrepresented and concealed by Defendants’ prior materially false or misleading statements gradually became apparent to the market, [and] the price of Apache common stock fell precipitously, as the prior artificial inflation created and/or maintained by Defendants’ materially false or misleading statements dissipated” through each of the five alleged corrective disclosures.⁶²

V. Ms. Allen Has Adopted an Incorrect and Overly Narrow Interpretation of Lead Plaintiffs’ Allegations in This Matter

15. Ms. Allen’s opinion that “there is no price impact and no link between any of the alleged misrepresentations made during the alleged Class Period and Apache’s stock price during the Focus Period,”⁶³ hinges on her faulty assumption that the “alleged ‘truth’ regarding the alleged misrepresentations”⁶⁴ could only have been revealed by the disclosure of information sufficient to “change the market’s expectations about Alpine High’s reserves or the mix of oil and wet gas vs. dry gas.”⁶⁵ Additionally, Ms. Allen’s “big picture” analysis in Section VIII of her Report implicitly and mistakenly assumes that “downward changes in expectations about Alpine High,”

⁶¹ *MarketWatch*, “See where Apache Corp. says it found billions of barrels of oil; A sleepy corner of west Texas is home to an ‘immense’ discovery,” September 10, 2016, 10:54 AM (emphasis added).

⁶² Complaint, ¶301.

⁶³ Allen Report, ¶3.

⁶⁴ Allen Report, ¶46.

⁶⁵ Allen Report, ¶48(c); *see also id.* ¶¶73, 80, 97–102.

“driven by the deteriorating outlook for commodity prices,” are unrelated to Defendants’ alleged fraud.⁶⁶

16. These opinions, however, are premised on an incorrect and overly narrow interpretation of Plaintiffs’ claims. Specifically, Ms. Allen ignores Plaintiffs’ allegations that, “[i]n *addition to* touting the putatively extraordinary volume of high quality oil and NGLs across the Alpine High acreage,”⁶⁷ Defendants also repeatedly and misleadingly reassured investors that Alpine High was a “transformational discovery” for Apache and a “world class resource play” that, among other things, would prove to be “highly economic” and “drive incremental growth and returns for years to come,” including “*even if* oil or gas prices fell substantially.”⁶⁸ Throughout the Class Period, Defendants’ alleged misstatements repeatedly underscored these topics—including reassurances that continued even until close to the end of Ms. Allen’s Focus Period.

17. For instance, the Complaint alleges that:

- In Apache’s September 7, 2016 press release, “Defendant Christmann hailed the Alpine High discovery as ‘an immense resource that we believe will deliver significant value for our shareholders for many years.’”⁶⁹ And, during the Barclays conference the same day, “Defendants touted Alpine High as a ‘world-class resource play,’” and “Christmann represented to investors that the play would produce highly profitable results in oil and wet gas even at very low commodity prices. Indeed, Christmann explained that, after factoring all possible costs (“fully burdened” economics), “the rates of return...go off the charts”—and that even at \$40/barrel oil and \$2.50 gas, “the returns are still significantly high,” which “just gets back to how prolific [Alpine High] is.” Christmann stated that these “tremendous economics” made for a play where there was a “very wet gas resource where you virtually get the [dry] gas for free.”⁷⁰ Finally, Christmann warranted

⁶⁶ Allen Report, ¶6.

⁶⁷ Complaint, ¶36 (emphasis added).

⁶⁸ Complaint, ¶¶1 (emphasis in original removed), 36 (emphasis in original), 208.

⁶⁹ Complaint, ¶191 (emphasis added).

⁷⁰ Complaint, ¶¶192, 194 (emphasis in original removed, emphasis added).

that Alpine High “**was always in the oil and wet gas window. It’s not dry gas.**”⁷¹

- “On September 28, 2016, *Forbes* published an article titled ‘Apache Corp. Represents The Thorn That America’s Oil Frackers Have Stuck In The Side Of OPEC.’ The article noted that ‘Christmann says the field, which they named Alpine High, **contains some of the cheapest oil and gas to produce not just in the U.S., but in the world, economic to drill at prices as low as \$40 a barrel,**’ and quoted Christmann as saying that ‘**Alpine High will be very difficult to compete with on an economic basis.**’”⁷²
- On February 23, 2017, Apache issued a press release quoting Christmann as stating: “We [] discovered and announced the Alpine High, a sizeable new resource play in the Delaware Basin, which **brings significant drilling inventory and puts Apache in one of the most exciting and competitive positions in the industry.**”⁷³ And, during Apache’s investor conference call the same day, Christmann reaffirmed that “**even in the lower commodity price environment, this play is going to be very economic.**”⁷⁴
- On October 9, 2017, Defendant Sullivan again touted Alpine High’s numerous oil drilling locations, stating that, in the Wolfcamp and Bone Springs formations, “[Apache] can safely say that we have at least **500 economic [oil] well locations** at this time.”⁷⁵
- On February 22, 2018, Defendants reiterated: “[A]t Alpine High, we are **building out a world-class resource play that will change the course of Apache. The expanse of the opportunity in terms of acreage and hydrocarbon column will drive capital investment, and very soon, free cash flow for decades to come.**”⁷⁶ Furthermore, Defendants again reassured investors that Alpine High would be profitable and successful even at extremely low commodity prices, stating Alpine High “**is going to really hum below \$2 [prices] on the gas side**” and that “we’ve run many cases on the downside. **We would not be making this type of investment on the midstream or the upstream side if we thought there was a sensitivity that**

⁷¹ Complaint, ¶199 (emphasis added).

⁷² Complaint, ¶206 (emphasis in original removed, emphasis added).

⁷³ Complaint, ¶223 (emphasis in original removed, emphasis added).

⁷⁴ Complaint, ¶224 (emphasis in original removed, emphasis added).

⁷⁵ Complaint, ¶248 (emphasis in original removed, emphasis added).

⁷⁶ Complaint, ¶254 (emphasis in original removed, emphasis added).

was close to anything that would come into making it not work under very, very low gas and NGL and oil prices.⁷⁷

- On May 2, 2019, even after Apache’s April 23, 2019 announcement of gas deferral at Alpine High purportedly due to low commodity prices, Christmann promised that Alpine High would be significantly increasing the Company’s profitability in the near future, stating: “In the Permian, **we are poised to deliver attractive oil growth and a substantial cash flow uplift at Alpine High in the second half of the year.**”⁷⁸
- On May 15, 2019, Bloomberg published a story titled, “Apache bets big on Permian gas liquids.” An Apache corporate spokesperson was quoted in the article as stating “**Investors do not yet have an appreciation for the potential cash flow generation from the liquids play at Alpine High.**”⁷⁹
- On August 1, 2019, Apache issued a press release announcing the Company’s financial results for the second quarter of 2019. The press release noted that Alpine High’s production had been disappointing, purportedly due to “delays” in bringing wells online, but assured investors that this was a temporary situation and things would soon improve. Specifically, Defendant Christmann was quoted as saying: “**We will catch up in the second half of 2019 and exit the year with oil production on plan and with strong momentum heading into 2020.**” During the accompanying investor conference call, Defendant Christmann continued to tout Alpine High, stating “we like the asset. **It’s a large resource as we’ve proven. There is tremendous rich-gas potential.**”⁸⁰

18. Thus, by overlooking numerous alleged misstatements, misconstruing Plaintiffs’ theory of liability, and interpreting the Complaint’s allegations through an overly narrow lens, Ms. Allen fails to consider whether the alleged corrective events caused investors to change their view regarding the economics of the Alpine High play, including with respect to oil, wet gas/NGLs, and dry gas, and particularly in a low-price environment for those commodities. However, in light of Defendants’ prior reassurances of highly compelling economics even at

⁷⁷ Complaint, ¶256 (emphasis in original removed, emphasis added).

⁷⁸ Complaint, ¶273 (emphasis in original removed, emphasis added).

⁷⁹ Complaint, ¶275 (emphasis in original).

⁸⁰ Complaint, ¶¶278–79 (emphasis in original removed, emphasis added).

extremely low commodity prices, changes in the market’s expectations regarding Alpine High’s profitability in a low-price environment are entirely consistent with Plaintiffs’ theory of liability, as are any resulting economic losses. The same is true of Ms. Allen’s assertion that “movements in Apache’s stock price and changes in expectations about Alpine High during the Focus Period were ... due to changes in commodity prices during the Focus Period.”⁸¹ The revelation of Alpine High’s poor performance when faced with low commodity prices is in direct contrast to Defendants’ allegedly false assurances during the Class Period that Alpine High would continue to perform well—“really hum,” in Defendant Christmann’s February 22, 2018 words—even at very low commodity prices.

VI. Ms. Allen Fails to Demonstrate a Lack of Price Impact Associated With the April 23, 2019 Alleged Corrective Disclosure

19. Before market open on April 23, 2019, Apache issued a press release announcing that the Company had “initiated natural gas production volume deferrals from its Alpine High play in late March, in response to extremely low prices at Waha Hub.” According to the Company, the “deferrals represent[ed] approximately 250 million cubic feet (MMcf) per day of gross gas production.”⁸² Defendant Christmann made the following remarks:

“We anticipate relatively wide and volatile natural gas price differentials in the Permian Basin until the Gulf Coast Express pipeline enters service. As a long-term returns-focused company, we know that production deferrals such as this will improve financial performance despite the impact on near-term volumes. This is the proper approach from both an environmental and economic perspective relative to other industry practices such as flaring or selling associated gas at a negative or unprofitable price,” continued Christmann.

“We will closely monitor daily pricing and return our gas to sales when it is profitable to do so. We are carefully managing these actions so there is no adverse impact on long-term wellbore integrity or reservoir productivity and look

⁸¹ Allen Report, ¶6.

⁸² *GlobeNewswire*, “Apache Corporation Announces Temporary Deferral of Alpine High Natural Gas Production in Response to Recent Pricing at Waha Hub,” April 23, 2019, 6:30 AM.

forward to returning this production to market as soon as practical,” said Christmann.⁸³

Plaintiffs allege that “[a]s a direct result of the April 23, 2019 partial corrective disclosure that the Company was scaling back natural gas production efforts,” Apache’s stock price declined from a close of \$37.09 on April 22, 2019 to a close of \$33.06 on April 26, 2019, “a four-day decline of \$4.03 per share, or nearly 11%.”⁸⁴

20. Apache’s announcement of a deferral at Alpine High was not made in connection with any other announcements or earnings release by the Company, and Ms. Allen has not identified any other Company-specific news to explain the statistically significant price decline in Apache common stock from April 23–26, 2019. Nonetheless, she concludes that there is no price impact associated with the April 23, 2019 alleged corrective disclosure for the following three reasons:

- “there was no statistically significant decline in Apache’s stock price following the April 23, 2019 press release, according to both Dr. Nye’s event study model and the alternative event study model”;
- “the allegedly corrective information, the deferral of gas production at Alpine High, was in response to ‘extremely low’ regional gas prices and was expected by the market given those prices”; and
- “the allegedly corrective information did not change the market’s expectations about Alpine High’s reserves or the mix of oil and wet gas vs. dry gas.”⁸⁵

21. First, as discussed in Section X below, Ms. Allen’s conclusion that the April 23, 2019 partial corrective disclosure had no price impact because it did not induce a statistically significant single-day stock price decline at the 95% confidence level is a fundamental error of statistical inference. The science of financial economics explicitly allows for security prices to

⁸³ *Ibid.*

⁸⁴ Complaint, ¶311.

⁸⁵ Allen Report, ¶48.

efficiently adjust to new information that even minimally affects the “present value of the expected cash flows an investor will receive from owning it,”⁸⁶ and “the absence of a statistically significant price adjustment does not show the stock price was unaffected by the misrepresentation.”⁸⁷

22. Second, Ms. Allen’s opinion is also premised on the assumption that a one-day event window is the only appropriate event window to use when assessing price impact for the April 23, 2019 disclosure. On the contrary, as discussed in Section XI below, it is well established that the use of a multi-day event window is a reliable and scientific methodology for estimating the price impact of certain corporate events. In fact, Ms. Allen has used multi-day event windows in her prior expert work. For instance, in *Beckel v. Fagron Holdings USA, LLC*, a securities fraud case involving “a claim for damages against Defendants for violation of Section 10(b),”⁸⁸ Ms. Allen herself used a three-day stock price reaction following an alleged corrective disclosure to calculate plaintiff’s damages.⁸⁹

⁸⁶ Berk, Jonathan and Peter DeMarzo, 2007, *Corporate Finance*, Pearson Education, Inc., 1st Ed., Ch. 9, p. 245.

⁸⁷ *Rooney v. EZCORP, Inc.*, 330 F.R.D. 439, 450 (W.D. Tex. 2019).

⁸⁸ *Beckel v. Fagron Holdings USA, LLC*, No. 8:16-cv-02059-SDM-AAS (M.D. Fla.) (“*Beckel*”), Amended Complaint, filed October 31, 2018, *Beckel* Dkt. 83, ¶59.

⁸⁹ *See Beckel*, Dkt. 144-2, Expert Report of Lucy P. Allen, filed April 5, 2019 (“*Allen Beckel Report*”), ¶¶22–26 (emphasis added):

To obtain as estimate of the price reaction due to the announcement of the reimbursement changes, I used the event study methodology. ... According to the event study model, there was a statistically significant decline in Fagron’s stock price on August 4, 2015. The statistically significant price reaction following the August 4 announcement **continued for two additional days**, until August 6, 2015. In total, the price decline through August 6 based on the event study was 26.5%. ... Using the 26.5% stock price decline based on the event study yields damages of \$2.68 million (\$10.11 million × 26.5% = \$2.68 million).

23. Here, however, Ms. Allen ignores the statistically significant multi-day price declines observed following the April 23, 2019 partial corrective disclosure. Specifically, as shown in the following table, the two-, three- and four-day declines in Apache's stock price are statistically significant at the 92.59%, 98.96% and 99.01% confidence levels, respectively, under my event study model (which Ms. Allen does not contest), while the three- and four-day stock price declines are likewise statistically significant at the 94.33% and 96.56% confidence levels, respectively, under Ms. Allen's alternative event study model:

Event Window	Nye Event Study			Allen Alternative Event Study		
	Company-Specific Return	t-Stat	Confidence Level	Company-Specific Return	t-Stat	Confidence Level
4/23/2019	-1.45%	-1.05	70.64%	-1.37%	-0.99	67.77%
4/24/2019	-2.04%	-1.48	86.06%	-0.75%	-0.54	41.28%
4/25/2019	-2.67%	-1.94	94.62%	-2.47%	-1.78	92.38%
4/26/2019	-1.01%	-0.73	53.29%	-1.31%	-0.94	65.11%
2-Day Event Window (4/23-24/2019)	-3.49%	-1.79	92.58%	-2.13%	-1.09	72.12%
3-Day Event Window (4/23-25/2019)	-6.16%	-2.58	98.96%	-4.60%	-1.91	94.33%
4-Day Event Window (4/23-26/2019)	-7.17%	-2.60	99.01%	-5.91%	-2.13	96.56%

Source: Nye Report Exhibit 11; NERA_019129

24. With respect to Ms. Allen's opinion that the April 23, 2019 partial corrective disclosure lacked price impact because the Company's deferral of gas production was "expected by the market,"⁹⁰ she implicitly assumes that the deferral was expected with 100% certainty at the time, and therefore could not possibly have had any effect on Apache's stock price.⁹¹ In doing so, however, Ms. Allen ignores the fact that at least eight analysts (Capital One; Macquarie; RBC;

While *Beckel* concerned a multi-day event window where the stock price decline on the first day was statistically significant, Ms. Allen cites no academic literature supporting the notion that multi-day event windows can only be appropriate if there is a statistically significant price decline on day 1, irrespective of stock price declines and relevant circumstances associated with the other days in the event window.

⁹⁰ Allen Report, ¶48.

⁹¹ See Allen Deposition, 133:15–20 ("[T]he market was not negatively surprised when Apache deferred its production at Alpine High. They thought -- the market was not surprised. There's no negative surprise from that. That was expected by the market. So the misstatements were not impacting the stock price.")

Scotia; Stephens; Barclays; Mizuho; and Tudor Pickering Holt & Co) issued reports and/or provided commentary to the press directly in response to the Company's announcement.⁹² Given Ms. Allen's opinion that "[a]nalysts typically issue reports after new information about the company is released,"⁹³ this fact alone strongly suggests that the deferral was "new information" to these analysts, who, in Ms. Allen's words, "play an important role in disseminating information about a stock and can be a valuable source of information on market knowledge and sentiment at the time."⁹⁴

25. Furthermore, the substance of these reports also contradicts Ms. Allen's conclusion that the deferral was fully expected by the market. Specifically, three analysts (*i.e.*, Capital One, Cowen, and Barclays) lowered their production estimates for Alpine High within days of the Company's disclosure:

- **Capital One (4/23/2019):**

Apache deferring some natural gas production at its Alpine High project is seen as having a minimal impact on Capital One's cash flow per share estimate, analyst Richard Tullis (equal-weight, PT \$29) writes in note. Assuming the current 250MMcf/d gross production remains offline for all of 2Q19, **Capital One's 2Q production estimate declines by 7% to 444Mboe/d, and CFPS estimate drops to \$1.89 from \$1.94.**⁹⁵

⁹² See *Bloomberg First Word*, "Apache Gas Deferral to Have Minimal 2Q CFPS Impact: Capital One," April 23, 2019, 9:01 AM; Macquarie Research, "Apache Corp (APA US); Effects of Negative Waha Prices, April 23, 2019; RBC Capital Markets, "APA - Deferring Alpine High Natural Gas due to Poor Pricing," April 23, 2019; Scotia Howard Weil, "Apache Corporation, Alpine High Natural Gas Production Deferred Due to Pricing," April 23, 2019; Stephens, "Apache Corporation, First Look: APA Announces Temporary Deferral of Alpine High Gas Volumes," April 23, 2019; Barclays, "Apache Corporation, Estimated Alpine High Base Production Breakevens Now vs. Ye'19; Model Update For Deferrals," April 28, 2019; *SNL Financial Extra*, "Apache cites poor Waha prices for decision to cut Permian gas production," April 23, 2019.

⁹³ Allen Report, ¶22 (emphasis added).

⁹⁴ Allen Report, ¶22.

⁹⁵ *Bloomberg First Word*, "Apache Gas Deferral to Have Minimal 2Q CFPS Impact: Capital One," April 23, 2019 (emphasis added).

- **Cowen (4/26/2019):**
Many investors appeared poised for disappointing 1Q prints out of the Permian. To date, we've already seen Waha regional gas pricing (\$1.428/Mcf in 1Q19, -\$0.29 in 2Q19) compel shut-ins at Alpine High for APA.... [In this report, **Cowen reduced its estimate of Apache's "Total Production" in 2019 to 477 Mboe/d from 490 Mboe/d.**]⁹⁶
- **Barclays (4/28/2019):**
Model Update: Based on our current dry gas breakeven of \$0.89/MCF and the Waha futures curve ..., we model half of the deferred 250MMCF/d (gross) will return in July. The Alpine High shut-ins have a minimal effect on total production. **Our Q2'19 total production estimate is now ~2% lower than our prior forecast and is now 2% lower than Consensus as well.** Reiterate Underweight rating and \$30 PT.⁹⁷

26. Ms. Allen also fails to explain how the reactions of Macquarie Research and RBC Capital Markets on April 23, 2019, both of which characterized the deferral as a "negative" event, are consistent with the notion that the announcement was expected by the market:

- **Macquarie Research (4/23/2019):**
APA announced the deferral of Alpine High dry gas production.

Impact

Slight Negative - Given the severity of local Permian natural gas pricing weakness, we think the deferral of gas is prudent and likely expected by investors. We do, however, think the announcement **confirms incremental risk is present in the back-half '19 ramp and creates additional questions on NGL pricing/volumes.** ...

Macquarie Thoughts: Even if gas is only deferred during April, we could witness 83Mmcfd, or ~14mboe/d, lower production during 2Q19, which creates a difficult ramp to >100mboe/d. We do think **the announcement places downside risk to our production estimates.** However, the announcement itself is not that much of a negative, in our view. Our greater concern is on the risk that prices remain suppressed and thus volume remains deferred for a longer period of time (i.e. multiple months). In addition to the challenge in ramping production, **we question whether the company would**

⁹⁶ Cowen, "Industry Update, 1Q19 Preview: Keeping One's Vows," April 26, 2019.

⁹⁷ Barclays, "Apache Corporation, Estimated Alpine High Base Production Breakevens Now vs. Ye'19; Model Update For Deferrals," April 28, 2019 (emphasis added).

witness any damage to the reservoir associated with the curtailed volumes.⁹⁸

- **RBC Capital Markets (4/23/2019):**

Our View: We think this is a slight negative on the margin. The decision positively impacts cash flow in the near term but it does show the current tightness and sensitivity of the Permian gas market. APA has 500 MMcf/d of capacity on Gulf Coast Express (expected in service later this year) and additional capacity on Permian Express (expected in service in 2020) providing transport to Gulf Coast markets.⁹⁹

27. Analysts with Mizuho and Tudor Pickering Holt & Co. also expressed concerns that day, following the Company's disclosure of the deferral:

Record negative prices at the Waha Hub led one of the primary independents operating in the Permian Basin to significantly cut its natural gas production.

...

With Waha prices still well into the negatives, Apache's deferrals could stay in place for some time as the company waits for the new pipeline capacity to come online. If that occurs, some analysts believe that it could sting Apache subsidiary Altus Midstream Co.'s earnings even if it has minimal effect on Apache.

"It seems like these production deferrals could remain ongoing at least until Gulf Coast Express starts up in October which likely puts the Altus EBITDA guide at some risk," Mizuho analyst Paul Sankey said.

In its commentary on Apache's move, Tudor Pickering Holt & Co. said it believes that Apache needs to go into greater detail about how the deferrals will affect its production plans for the rest of 2019.

"We'll be looking for color on volumes deferred thus far and the outlook from now through the scheduled [Gulf Coast Express] in-service date, with today's disclosure only quantifying current deferrals of ~250mmcf/d gross," the firm said. "At this point, there have been no changes to [Apache] activity plans, APA Alpine High 2019 exit production guidance, or [Altus] FY'19 EBITDA."

⁹⁸ Macquarie Research, "Apache Corp (APA US); Effects of Negative Waha Prices, April 23, 2019 (emphasis added).

⁹⁹ RBC Capital Markets, "APA - Deferring Alpine High Natural Gas due to Poor Pricing," April 23, 2019 (emphasis added).

Apache stock was down a little more than 1.4% to \$36.57 per share in early afternoon trading on the New York Stock Exchange on April 23.¹⁰⁰

28. Similarly, commentators in the financial and energy media also responded negatively to the Company’s April 23, 2019 disclosure of deferrals at Alpine High. For example, *Bloomberg* reported that “the production deferral is another blow to the Apache project,” while *SNL Energy Finance Daily* attributed the decline in the Company’s stock price to news of the deferral:

The production deferral is **another blow to the Apache project**. The company once said Alpine High held 3 billion barrels of oil, but in March it said it was deferring oil-focused work in order to concentrate on cost reductions and producing gas and byproducts such as propane. Apache said in February it would cut its capital expenditure by 22 percent, one of the largest spending reductions in the U.S. oil and gas sector.¹⁰¹

Shares of Apache Corp. slid 1.78% on above-average volume to \$36.43, after the company declared that it initiated gas volume production deferrals from its Alpine High play in late March, with current deferrals at 250 MMcf/d of production. The company blamed the need for the deferrals on “extremely low prices” at the Waha Hub.¹⁰²

29. Furthermore, with respect to the two analysts Ms. Allen cites in support of the notion that “the deferral of Alpine High production ... was not a surprise to the market,”¹⁰³ she fails to mention: (i) that “optically [Stephens] view[ed] the release as a negative,” and felt that “incremental details are needed to fully quantify the impact [of the deferral]”;¹⁰⁴ and (ii) Scotiabank’s conclusion that, “[u]ltimately, while the extremely low gas price environment may

¹⁰⁰ *SNL Financial Extra*, “Apache cites poor Waha prices for decision to cut Permian gas production,” April 23, 2019 (emphasis added).

¹⁰¹ *Bloomberg News*, “Apache Defers Alpine High Gas Output Amid Permian Price Slump,” April 23, 2019, 7:04 AM.

¹⁰² *SNL Energy Finance Daily*, “Tuesday’s Energy Stocks: S&P 500 records new closing high,” April 24, 2019.

¹⁰³ Allen Report, ¶56.

¹⁰⁴ Stephens, “Apache Corporation, First Look: APA Announces Temporary Deferral of Alpine High Gas Volumes,” April 23, 2019.

be somewhat transitory, we see the wide and volatile WAHA differentials as a reason to avoid APA in the near term.”¹⁰⁵ Contrary to Ms. Allen’s assertion, the negative reactions of these analysts does not support an inference that the Company’s April 23, 2019 disclosure of deferrals at Alpine High was “fully expected” by the market, as Ms. Allen testified.¹⁰⁶

30. Ms. Allen also fails to consider that several analysts “update[d] [their] estimates to reflect production curtailments at Alpine High,”¹⁰⁷ following Apache’s 1Q19 earnings release a week later, on May 1, 2019, and/or commented that the Company’s production guidance missed expectations as a result of the Alpine High deferrals announced on April 23, 2019. For example:

- **Credit Suisse (5/2/2019):**
Other key takeaways: 1) 2Q production guidance of 459 MBoed (well below consensus/CSe of 484/488 MBoed) implies a ~9% sequential drop **due to a 30% QoQ plunge in Alpine High volumes** to 45-55 MBoed.¹⁰⁸
- **Piper Jaffray (5/1/2019):**
And despite an **underwhelming 2Q/3Q production outlook** (Permian frac holiday and gas deferrals), 2019 exit rate was reiterated Updated Alpine High Outlook In-line: **Well-telegraphed gas deferrals are expected to reduce the FY19 target for Alpine High by 10 Mboe/d** to a mid-pt of 77.5 Mboe/d.¹⁰⁹
- **RBC Capital Markets (5/2/2019):**
Updating estimates. **We update our estimates to reflect production curtailments at Alpine High** and the impact from the non-core asset sale and associated production (assumed 2Q19 close). The revised production

¹⁰⁵ Scotia Howard Weil, “Apache Corporation, Alpine High Natural Gas Production Deferred Due to Pricing,” April 23, 2019.

¹⁰⁶ Allen Deposition, 132:16–18.

¹⁰⁷ RBC Capital Markets, “Apache Corporation, The Waiting Game,” May 2, 2019, 8:42 PM.

¹⁰⁸ Credit Suisse, “Apache Corporation, Still Waiting for FCF Inflection; Trimming Ests,” May 2, 2019 (emphasis added).

¹⁰⁹ Simmons Energy, A Division of Piper Jaffray, “Apache Corporation, Q1’19 Quick Look: Solid Result, While Market Waits on Suriname,” May 1, 2019, 8:37 PM (emphasis added).

guide of 420–435 Mboe/d is lowered by 5 Mboe/d to reflect the curtailments but does not reflect the impact of the asset sale.¹¹⁰

- **Scotiabank (5/1/2019):**
[W]hile the quarter was fine, the outlook for 2Q19 is challenging with the recently announced natural gas curtailments in the Alpine High. Between Alpine High shut-ins and lower projected international volumes, total adjusted production is expected to see a sequential decline of 10%, or from 437 MBoe/d to 392 MBoe/d.¹¹¹
- **Stephens (5/2/2019):**
Company guided 2Q19 adj. volumes to 392 Mboepd vs. our ~413 Mboepd outlook. The delta in our estimate vs. guide was lower Alpine (guide of 45-55 Mboepd, ~15% below our expectations) and International volumes (~132 Mboepd guide, ~5% below our forecast).¹¹²
- **UBS (5/2/2019):**
Apache reported solid Q1 results with EBITDAX above expectations tied to int'l production. However, given (1) the production deferrals at Alpine High and current natgas / NGLs pricing, (2) exploration potential in Suriname, and (3) non-core asset divestitures (\$300mm), management commentary / outlook in these areas will command most of the market's focus. The immediate impact of the deferrals is expected in 2Q with production declining ~20mboepd at the midpoint from 1Q levels.¹¹³
- **Wolfe (5/1/2019):**
Alpine High Deferrals Quantified. After announcing last week that it would begin deferring near-term completions at Alpine High due to low Waha gas pricing, APA forecast that 2Q19 volumes in the play will average 45-55 MBOE/d, down <30% vs. 1Q19 Alpine High production of 70 MBOE/d. The >100MBOE/d has remained intact though. During the quarter APA dropped from 7 rigs/2 frac crews in the play to 5 rigs/1 crew with completions falling by 35% Q/Q, so activity here is clearly dropping.¹¹⁴

¹¹⁰ RBC Capital Markets, "Apache Corporation, The Waiting Game," May 2, 2019, 8:42 PM (emphasis added).

¹¹¹ Scotia Howard Weil, "Apache Corporation, 1Q19 Results: Quarter Overshadowed by Difficult 2Q19 Outlook," May 1, 2019, 8:04 PM (emphasis added).

¹¹² Stephens, "Apache Corporation, First Look: Solid 1Q19 Results; 2Q19 Guide," May 2, 2019 (emphasis added).

¹¹³ UBS, "Apache Corporation, Q1 Beats EBITDAX; Several Other Moving Pieces," May 2, 2019 (emphasis added).

¹¹⁴ Wolfe Research, "Apache Corp., Paramaribo Dreamin'," May 1, 2019 (emphasis added).

31. In sum, given the voluminous evidence to the contrary, Ms. Allen has no basis to opine that the April 23, 2019 partial corrective disclosure lacked price impact because the Company’s deferral of gas production was “expected by the market.”¹¹⁵ The reactions of analysts and news media strongly suggest that Apache’s announcement of gas deferrals at Alpine High was considered an unexpected negative event. Indeed, consistent with market efficiency, which dictates that stock prices change upon the disclosure of new, unexpected, value relevant information,¹¹⁶ both my and Ms. Allen’s alternative event studies find that Apache stock suffered a series of Company-specific stock price declines, net of contemporaneous market and industry effects, following the April 23, 2019 partial corrective disclosure.¹¹⁷

32. Moreover, Ms. Allen asserts that “the allegedly corrective information, the deferral of gas production at Alpine High,”¹¹⁸ “rather than having any link to the alleged misrepresentations made during the alleged Class Period,”¹¹⁹ “was in response to ‘extremely low’ regional gas prices.”¹²⁰ However, this seeks to rebut Plaintiffs’ allegations regarding “loss causation—a causal connection between the defendants’ alleged misrepresentations and the plaintiffs’ economic losses,”¹²¹ which I understand to be premature at this stage of the litigation.¹²² The

¹¹⁵ Allen Report, ¶48.

¹¹⁶ Nye Report, ¶60: “Apache’s common stock price reflected the information disclosed to the market, and promptly responded to the disclosure of new, unexpected, value relevant information.” Ms. Allen assumes, and therefore does not dispute, that Apache stock traded in an efficient market throughout the Class Period. (*See* Allen Report, ¶1.)

¹¹⁷ *Supra* at ¶23.

¹¹⁸ Allen Report, ¶48.

¹¹⁹ Allen Report, ¶53.

¹²⁰ Allen Report, ¶48.

¹²¹ *Halliburton II*, 134 S. Ct. at 2406 (internal quotations omitted).

¹²² *Erica P. John Fund, Inc. v. Halliburton Co.*, 563 U.S. 804 (2011).

same is true for her argument that the April 23, 2019 partial corrective disclosure lacked price impact because “the allegedly corrective information did not change the market’s expectations about Alpine High’s reserves or the mix of oil and wet gas vs. dry gas.”¹²³ Indeed, without the benefit of fact discovery, Ms. Allen is simply assuming that the Company’s decision to defer gas production at Alpine High was entirely unrelated to the alleged misrepresentations.¹²⁴ However, it is my understanding that these arguments are contingent on “inquiries into loss causation [that I understand] are properly addressed by a fact-finder on the merits,”¹²⁵ not by a financial economist prior to the close of fact discovery.

33. Moreover, Ms. Allen’s price impact analysis for April 23, 2019 completely ignores Plaintiffs’ allegations that Defendants falsely “assur[ed] investors that Alpine High’s best wells would ‘generate positive returns even at 0 [dry] gas price,’”¹²⁶ and “continued to assuage investor concern [throughout the Class Period] by presenting Alpine High in an overwhelmingly favorable light with highly compelling economics even at very low energy prices.”¹²⁷ Thus, under Plaintiffs’ theory of liability, it is entirely plausible that investors would react negatively (as they did) to news of gas production deferrals at Alpine High, which undermined Defendants’ prior assurances of highly compelling economics even at “‘extremely low’ regional gas prices.”¹²⁸ Contrary to Ms. Allen’s assertions, changes in the market’s expectations regarding

¹²³ Allen Report, ¶48.

¹²⁴ See Allen Deposition, 34:25–35:13 (conceding that Ms. Allen never asked Defendants’ counsel if Apache has any internal documents bearing on price impact).

¹²⁵ *Hatamian v. Advanced Micro Devices, Inc.*, No. 14-CV-00226-YGR, 2016 WL 1042502, at *9 (N.D. Cal. Mar. 16, 2016).

¹²⁶ Complaint, ¶72.

¹²⁷ Complaint, ¶78.

¹²⁸ Allen Report, ¶48.

Alpine High's profitability in a low-price environment are related to the alleged misrepresentations, as are any resulting economic losses.

VII. Ms. Allen Fails to Demonstrate a Lack of Price Impact Associated With the October 25, 2019 Alleged Corrective Disclosure

34. On October 25, 2019, early in the trading day at approximately 9:44 AM, news reports revealed that Apache's Senior Vice President of Worldwide Exploration, Steven Keenan, had resigned.¹²⁹ Roughly 35 minutes after the news broke, the market learned that Mr. Keenan's resignation was "[n]ot [r]elated to" its Suriname exploration, but rather to "other matters."¹³⁰ Apache's stock price declined following news of Mr. Keenan's resignation, and continued to trade well below its opening price even after the market learned that Mr. Keenan's resignation was unrelated to Apache's operations in Suriname, closing at \$22.07, or -4.99% from the previous day's close of \$23.23. Ms. Allen has not identified any other Company-specific news that could have influenced Apache's stock price on October 25, 2019.

35. According to my event study, the Company-specific return on October 25, 2019, as measured from the prior trading day's closing price to the closing price on October 25, 2019, was -5.55%, which is statistically significant at the 99.92% confidence level.¹³¹ Media outlets attributed the decline in the prices of Apache's securities on October 25, 2019 to the news of Mr. Keenan's resignation. For example:

- Apache reports resignation of SVP of worldwide exploration, Bloomberg reports that Apache said its Senior Vice President of Worldwide Exploration,

¹²⁹ *Bloomberg News*, "Apache: SVP of Worldwide Exploration Steven Keenan Resigned," October 25, 2019, 9:44 AM.

¹³⁰ RBC Capital Markets, "APA - SVP Resignation Causing Stock Weakness; Company Indicating Not Related to Maka-1 Outcome," October 25, 2019, 10:19 AM.

¹³¹ *See* Nye Report, Exhibit 11B.

Steven Keenan, has resigned. In early trading, shares of Apache are down 7.5% to \$21.49.¹³²

- Apache bonds weakened Friday morning in New York after a spokesman confirmed that Steven Keenan, the geologist leading one of the company's most important exploration ventures, has resigned. The spreads on the energy company's 4.375% bonds due 2028 widened 10 bps to 272 bps, according to Trace. The bonds were among the biggest losers in the U.S. investment grade market today, on a spread basis The stock fell as much as 11.45%.¹³³

36. According to Ms. Allen's alternative event study, the Company-specific return on October 25, 2019, also measured from the prior trading day's closing price to the closing price on October 25, 2019, was -7.37%, which is statistically significant at the 100.00% confidence level. Thus, Ms. Allen does not dispute that Apache's stock price decline on October 25, 2019 was statistically significant.¹³⁴ Nor does she dispute that the stock price decline was in reaction to news of Mr. Keenan's departure.¹³⁵ Instead, she argues that the "October 25, 2019 alleged corrective disclosure shows no price impact," because:

- i. "all analyst commentary following this announcement explicitly attributed Apache's stock price decline on that day to market speculation about Apache's Suriname exploration and not due to any new news about Alpine High;" and
- ii. "no new information about Alpine High was revealed."¹³⁶

37. However, Ms. Allen's analysis of the market's reaction to the October 25, 2019 corrective disclosure is inaccurate and incomplete, and therefore unreliable. Indeed, she fails to consider several relevant events that transpired over the course of the day, which invalidate her

¹³² *Theflyonthewall.com*, "09:59 EDT Apache reports resignation of SVP of worldwide exploration, Bloomberg...", October 25, 2019.

¹³³ *Bloomberg*, "Apache's Debt Weakens After Key Geologist Leaves," October 25, 2019, 12:35 PM.

¹³⁴ *See* Allen Deposition, 156:6–11.

¹³⁵ *See* Allen Deposition, 156:25–157:8.

¹³⁶ Allen Report, ¶64.

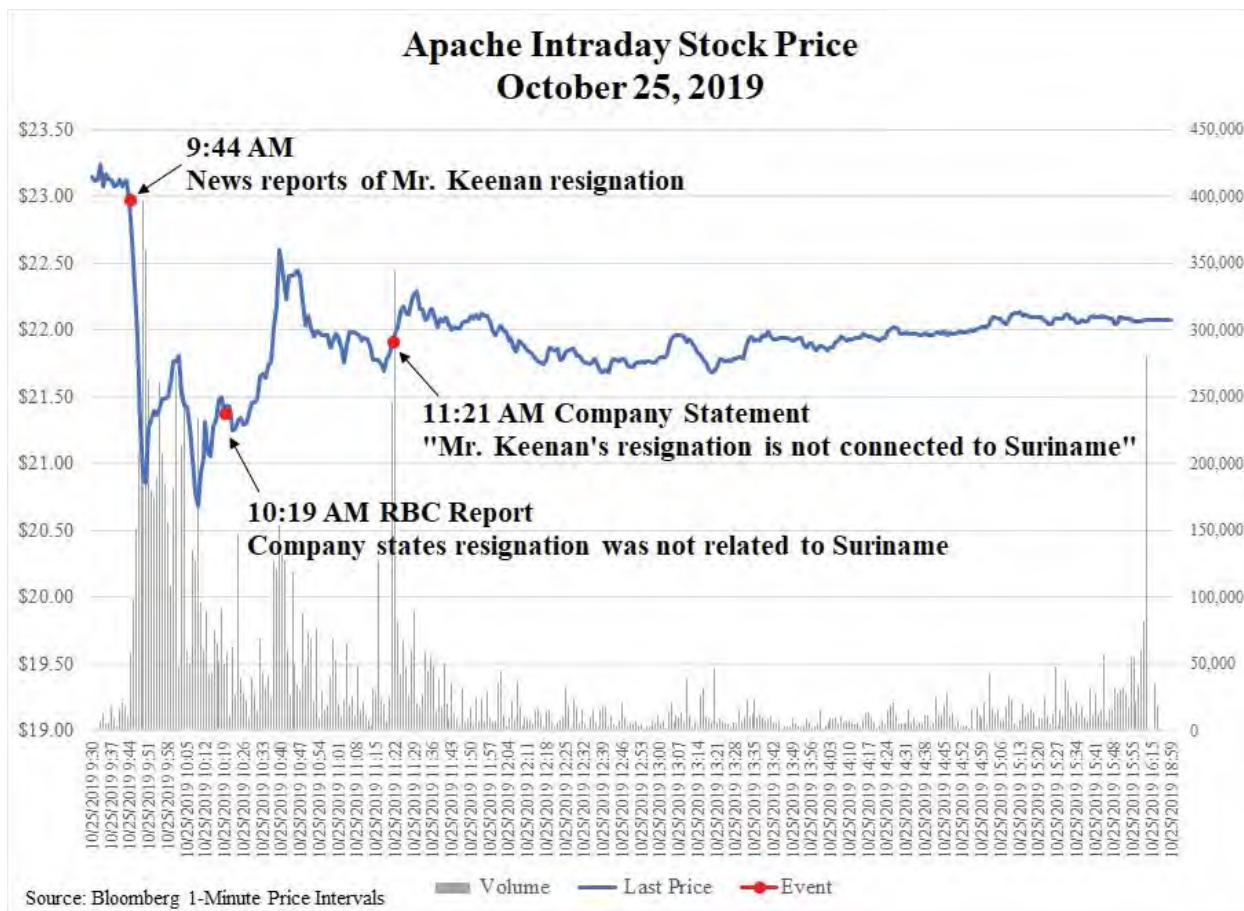
assertion that the statistically significant stock price decline that day was due to investor concerns about Suriname.¹³⁷ Specifically, Ms. Allen ignores the fact that Apache's stock price plummeted immediately after Mr. Keenan's departure was announced at 9:44 AM, but then partially rebounded roughly 35 minutes later after RBC Capital Markets reported, at 10:19 AM, that "[b]ased on our conversation with APA, as of the resignation date, the [C]ompany had not reached the target objective at the [Suriname project's] Maka-1 prospect and **[Mr. Keenan's] resignation was related to other matters.**"¹³⁸ Ms. Allen also omits any mention of Bloomberg's 11:21 AM newsflash that "***APACHE SAYS SVP KEENAN'S DEPARTURE NOT CONNECTED TO SURINAME,**"¹³⁹ after which the Company's stock price stabilized at roughly \$22 per share for the remainder of the trading day.¹⁴⁰

¹³⁷ At her deposition, Ms. Allen testified that "all of the analysts that reported on this said that the price -- exclusively attribute the price decline on that date is speculation about Suriname -- about Apache Suriname exploration." (See Allen Deposition, 157:14–17.)

¹³⁸ RBC Capital Markets, "APA - SVP Resignation Causing Stock Weakness; Company Indicating Not Related to Maka-1 Outcome," October 25, 2019, 10:19 AM (emphasis added).

¹³⁹ Bloomberg, "***Apache Says SVP Keenan's Departure Not Connected to Suriname,**" October 25, 2019, 11:21 AM (emphasis added).

¹⁴⁰ At her deposition, Ms. Allen conceded that "[she] didn't do any specific intraday analysis of Apache's stock price on October 25, 2019." (See Allen Deposition, 165:2–7.)



38. Shortly thereafter, additional financial news outlets reported that “[Mr. Keenan’s] departure is not connected to the company’s exploration program in Suriname,”¹⁴¹ and that, according to “Houston-based Apache ... ‘the drill bit is still above the first target zone in the Suriname well.’”¹⁴² Analysts not only parroted the Company’s assurances about Suriname, but they also stated that they “[did] not believe the departure [was] linked to results of the well.”¹⁴³

¹⁴¹ *Theflyonthewall.com*, “11:34 EDT Apache tells Bloomberg SVP’s departure not connected to SurinameShares...,” October 25, 2019. *See also Reuters*, “Oil Industry veteran Steven Keenan resigns from Apache Corp,” October 25, 2019, 2:12 PM.

¹⁴² *Reuters*, “Oil Industry veteran Steven Keenan resigns from Apache Corp,” October 25, 2019, 2:12 PM.

¹⁴³ SunTrust Robinson Humphrey, “Resignation Not Linked to Upcoming Suriname Well Results,” October 25, 2019.

In fact, all three analysts that issued reports that day pointed to Mr. Keenan's role in Alpine High as likely contributing to his resignation, given the play's disappointing performance:

- **Credit Suisse:** "Mr. Keenan moved from EOG to APA in 2014 as Regional VP of Unconventional Resources and subsequently oversaw the discovery of the Alpine High play, which has been an economic disappointment for investors (at least partly due to depressed natural gas and NGL prices). Nonetheless, since APA unveiled the play in September 2016, its shares have underperformed global E&Ps by >30%, likely a cause for Mr. Keenan's resignation. ... While Mr. Keenan's exact role in Suriname is not clear (APA claims the resignation is not connected to the exploration prospect) ..."¹⁴⁴
- **RBC Capital Markets:** "Based on our conversation with APA, as of the resignation date, the company had not reached the target objective at the Maka-1 prospect and the resignation was related to other matters. They further indicated that there is a team in place and the work has been accomplished with regards to the more than dozen prospects in the Suriname region. Mr. Keenan was a major part of the team that discovered the Alpine High play that has been a significant investment for APA. However, we think the outcome of results from Alpine High have not met high expectations and due to weakening natural gas and NGL prices, we expect that APA could allocate activity away from Alpine high in favor of oilier targets in other parts of the Permian. The Maka-1 exploration well spud around 9/23/2019 and we are currently expecting the company to have results by mid-November."¹⁴⁵
- **SunTrust Robinson Humphrey:** "Apache's stock underperformed this morning (down ~5.5% vs. XOP up ~1 %) on investor speculation that a SVP's resignation (See Link) is linked to an upcoming unsuccessful Suriname Maka-1 exploration well in Block 58. We do not believe the departure is linked to results of the well as it does not appear that the well has reached its target formation yet. Faron Thibodeaux is the SVP in charge of Suriname while the departed SVP was a part of the team that discovered Alpine, which has been been [sic] disappointing with investors given the weak returns due to the high gas nature.

We anticipate Apache will soon signal a strategic shift away from Alpine High and toward higher oil cut regions such as the Midland Basin and Egypt, though we are unlikely to see full 2020 guidance. We will look for color surrounding the company's ongoing seismic shoot in the Western Desert in

¹⁴⁴ Credit Suisse, "Resignation of Exploration Head Highlights Suriname Risk to Share Price," October 25, 2019 (emphasis added).

¹⁴⁵ RBC Capital Markets, "APA - SVP Resignation Causing Stock Weakness; Company Indicating Not Related to Maka-1 Outcome," October 25, 2019, 10:19 AM (emphasis added).

APNs Egypt position, multiple development pads in the Midland Basin, and a timing update on the first Suriname Block 58 well on the upcoming earnings release.”¹⁴⁶

39. News reports discussing the resignation likewise emphasized Mr. Keenan’s role in the Alpine High shale discovery, including referencing the alleged false statements Defendants made on September 7, 2016 when announcing Alpine High, and its more recently revealed disappointing performance:

- **Reuters:** “Oil and gas industry veteran Steven Keenan, who was credited with a high-profile shale discovery for Apache Corp, resigned on Wednesday from his position as senior vice president of worldwide exploration, the company said on Friday ... Keenan has overseen the company’s exploration operations, unconventional resources technology team and operations in the Delaware basin since joining Apache five years ago. Keenan is widely credited with the Alpine High find in West Texas in 2016. When Alpine High was discovered Apache’s shares spiked as much as 14% with Chief Executive Officer John Christmann calling it a ‘world class resource’. However more recently Alpine High has struggled due to lower gas prices, with the company saying it would reassign capital expenditure to other areas.”¹⁴⁷
 - **Bloomberg News:** “Not long after [Steven Keenan] joined Apache, the company announced its Alpine High discovery in a little-drilled corner of the Permian Basin in West Texas. At the time, the company said the play held 3 billion barrels of crude and 75 trillion cubic feet of gas.
- But Apache’s stock has underperformed rival producers since it first touted the Alpine High find, which turned out to be far richer in gas than more valuable crude.”¹⁴⁸

40. In fact, before and after his resignation from the Company, both Apache itself as well as numerous news commentators widely credited Mr. Keenan with the “high-profile shale

¹⁴⁶ SunTrust Robinson Humphrey, “Resignation Not Linked to Upcoming Suriname Well Results,” October 25, 2019 (emphasis added).

¹⁴⁷ *Reuters*, “Oil industry veteran Steven Keenan resigns from Apache Corp,” October 25, 2019, 2:12 PM (emphasis added); *see also* Complaint, ¶192.

¹⁴⁸ *Bloomberg News*, “Apache Executive’s Departure Sparks Worst Rout Since 2016 (2),” October 25, 2019, 1:55 PM (emphasis added); *see also* Complaint, ¶191.

discovery” at Alpine High, with Apache inviting Mr. Keenan to participate in the Company’s announcement of the play and on a later date presenting him with a “President’s Award” for making the discovery, and one reporter even publicly characterizing Keenan as the “Godfather of Alpine High”:

- **Apache Conference Call (9/7/2016):** “And now, we have a new organic play that we’re going to talk about next and we did it in a very, very low entry cost. So, before I do this, there’s a team that I’m really going to give a lot of credit to because it takes unique individuals, and I think some of the business’ very best to uncover something like this, but I’m also going to take all the Apaches around the world because, without all the hard work and effort, all the cost cutting, every barrel we squeeze that let us put our opportunity set into this what is now the next resource play, the Alpine High, it wouldn’t be possible. So, this truly is an Apache discovery, and I’m proud to tell you it was a team approach and everybody’s had a hand in it even if they didn’t know they had a hand in it. Sitting in with me today is Steve Keenan. He joined us in 2014. He’s been able to build an organization in San Antonio that, quite frankly, I’ll put up against any organization in the business.”¹⁴⁹
- **Seeking Alpha (9/8/2016):** “A major thing to consider in all of this is the value Steven Keenan added to Apache when it hired him away from EOG Resources in 2014. It was his conclusion after a period of exploration, which previous explorers were only able to drill 110 dry holes, that [Alpine High] had a lot of potential yet to be discovered. In other words, Keenan is a moat for Apache that gives it an advantage over its peers.”¹⁵⁰
- **Forbes (9/8/2016):** “[W]hen we come across a story of a major oil company or large independent producer having success in adding massive new reserves to its portfolio via old-fashioned notions like rigorous study of 3D seismic, thermal maturity and mineralogy, and aggressive new leasing of lands in a target area that other large companies have written off over the years, it is viewed as quite a novelty in this modern era. For the story to involve the discovery of between 1.1 to 2.7 billion barrels of oil equivalent (BOE) that test wells indicate are economic to produce at current commodity prices or lower is truly extraordinary. Yet, in our interview on Wednesday, Apache Corporation’s Senior VP of North American Unconventional Resources, Steve Keenan, said that is precisely the story behind Apache’s new Alpine

¹⁴⁹ *Bloomberg Transcript*, “Barclays CEO Energy Power Conference,” September 7, 2016 (emphasis added).

¹⁵⁰ *Seeking Alpha*, “Apache’s New Oil And Gas Discovery Could Yield As Much As \$80 Billion,” September 8, 2016, 2:44 AM (emphasis added).

High discovery at the base of the Davis Mountains in West Texas. Keenan has had a 38-year career in the industry, mostly with EOG Resources prior to coming to Apache, the last 15 of which have been spent in the evaluation and development of unconventional resources.”¹⁵¹

- ***Houston Chronicle* (1/1/2017):** “[F]or Keenan, Alpine High was the culmination of a lifetime looking for gas and oil”¹⁵²
- ***Apache 2017 Annual Shareholder Meeting (5/11/2017):*** “The President’s Award is given to an outstanding employee who has demonstrated excellence through hard work, teamwork, character, innovation, leadership and results. ... **Here at Apache, he and his team have made a significant discovery at Alpine High. It’s a field that will deliver incredible value to Apache and its shareholders for many, many years to come. ... Ladies and gentlemen, I’m pleased to announce my choice for this year’s President’s Award is our Senior Region Vice President of our North American Unconventional Resources team, Mr. Steve Keenan.**”¹⁵³
- ***TPH Energy Resource (10/28/2019):*** “Friday’s underperformance (-11% lows vs. E&P -1% lows) was driven by market speculation regarding the departure of Steve Keenan, APA’s former SVP of Worldwide Exploration and San Antonio Region. Early chatter questioned if initial Suriname results were to blame, but timing of operations suggest otherwise, **leaving TPHe Alpine High (AH) reductions-to-come as the more likely culprit.** At strip, even giving APA the benefit-of-the-doubt on its AH productivity assumptions, we see a 30% ATROR breakeven of ~\$3.15/mcf which has us modeling a -4 rig reduction (to 2) to AH activity[.]”¹⁵⁴
- ***Houston Chronicle (10/30/2019):*** “Keenan was charged with finding Apache’s next big discovery and he seemingly did just that with Alpine High.”¹⁵⁵

¹⁵¹ *Forbes*, “Apache’s Alpine High Discovery Defies Conventional Wisdom,” September 8, 2016, 5:41 PM. *See also Forbes*, “Apache Corp. Represents The Thorn That America’s Oil Frackers Have Stuck In The Side Of OPEC,” September 28, 2016, 10:06 AM; *Forbes*, “The Alpine High: A Big Deal Last September, An Event Bigger Deal Today,” March 2, 2017, 11:24 AM.

¹⁵² *Houston Chronicle*, “BIG RISK, BIGGER REWARD; OIL MAVERICK’S GAMBLE PAYS OFF FOR APACHE,” January 1, 2017.

¹⁵³ *Bloomberg Government Disclosure*, “Apache Corp Annual Shareholders Meeting – Final,” May 11, 2017 (emphasis added).

¹⁵⁴ APACHE_00122800 at 801 (emphasis added).

¹⁵⁵ *Houston Chronicle*, “Apache at crossroads as it pins hopes on Suriname offshore field,”

- ***Bloomberg News (11/13/2019)***: “It was under Keenan’s watch that Apache developed the company’s flagship Alpine High discovery. Recently, however, Apache has had to shift rigs from Alpine High to oilier parts of the Permian Basin amid depressed natural gas and natural gas liquids prices.”¹⁵⁶
- ***Seeking Alpha (2/28/2020)***: “The departure of Steve Keenan, Apache’s SVP of World Wide Exploration did not pass without notice last fall. The stock dropped in part because Keenan was the Godfather of Alpine High.”^{157, 158}

41. Moreover, it is my understanding that any conclusion regarding the reason(s) for Mr.

Keenan’s resignation would be premature at this stage of the litigation, given that fact discovery is still in its early stages. That said, contrary to Ms. Allen’s unsupported inference, I understand

October 30, 2019.

¹⁵⁶ *Bloomberg News*, “Apache to Cut Workforce Up to 15% as Driller Eyes Overhaul,” November 13, 2019, 5:00 AM.

¹⁵⁷ *Seeking Alpha*, “Apache Corporation: Look Out Below,” February 28, 2020, 12:08 PM (emphasis added).

¹⁵⁸ Online chatgroup discussions also provide evidence that investors viewed Mr. Keenan’s resignation as related to Alpine High. *See, e.g.*, <https://seekingalpha.com/news/3509781-apache-chopped-on-word-of-key-execs-departure?hasComeFromMpArticle=true>:

- OilBull123 (October 25, 2019, 2:29 PM): “My guess is it’s more related to Alpine High being a bust by all appearances. I believe APA is reassigning capex from AH to other areas.”
- David Rahnis (October 26, 2019, 11:13 AM): “It is strange the lack of clarity around his resignation. I think if it was retirement or family reasons they would have said so. So must be performance based I guess. Leaves too many unanswered questions and I think that’s why stock tanked.”
- MoatMaker (October 30, 2019, 5:34 PM): “Let me tell you the truth about Steve Keenan’s departure. He was fired. SK came in, destroyed great company culture, squandered 100s of millions on pet projects, and fired anyone he felt threatened by. Technically he was weak... he didn’t understand basic fundamentals, would often try to hide behind jargon, and would blatantly hide or ignore data that was contrary to his story. And, when it comes to Alpine High the play started off as 30k acres of oil acreage in the very northern area... Then, in desperation to try and show impact Keenan and his cronies seized the project from the group that started it, secretly leased 300k acres and as a result the company has suffered mightily. And that, is the real story on Steve Keenan.”

that the limited discovery provided by Defendants to date supports Plaintiffs’ position that Mr. Keenan’s resignation was due to Alpine High’s performance. Notably, Ms. Allen makes no mention of it in her price impact analysis. For example, as described in the Complaint, a “confidential internal review of Alpine High data—code-named ‘Project Neptune’”¹⁵⁹—that was conducted during the Fall of 2019 concluded that:

(i) Apache’s data did not support and had never supported public type curves and other representations the Company had touted as support for Defendants’ representations about play-wide “well economics” and the value of Alpine High (instead, the quality of the wells and oil and gas Apache had drilled was far worse than what Defendants had represented); (ii) only if several highly favorable assumptions were applied could even some of the Alpine High wells be minimally economically viable; and (iii) the substantial majority of the Alpine High wells were not and had never been economically viable, even with the beneficial assumptions.¹⁶⁰

The Project Neptune team “provided the presentation, including all of the foregoing conclusions, to Apache’s senior management, including Christmann, as part of an in-person meeting with Christmann, in mid-October 2019.”¹⁶¹ Less than two weeks later, “media reports surfaced on October 25, 2019 that Keenan had abruptly ‘resigned.’”¹⁶²

42. Additionally, Defendants have produced internal documents, including a presentation titled, “Project Neptune Update,” dated October 14, 2019, showing that a retrospective, internal review of Alpine High data gathered since the play’s inception concluded that the “**actual results**” at Alpine High were “**materially below the published [data]**,”¹⁶³ and “**not even in the**

¹⁵⁹ Complaint, ¶6.

¹⁶⁰ Complaint, ¶96.

¹⁶¹ Complaint, ¶100. *See also* APACHE_00005833.pdf (“Project Neptune Update,” October 14, 2019).

¹⁶² Complaint, ¶102.

¹⁶³ APACHE_00005731 (October 14, 2019 “Project Neptune Update”) at 5751 (emphasis added).

ballpark” of the production amounts Defendants repeatedly touted.¹⁶⁴ As a result, the Project Neptune team recommended an “[e]xternal communications reconciliation”¹⁶⁵ a mere 10 days before Keenan’s departure. Thus, I understand that Defendants have produced internal documents corroborating the market’s understanding that the timing of Keenan’s resignation was directly linked to the performance of Alpine High. At her deposition, Ms. Allen testified that she did not consider any internal Apache documents bearing on price impact.¹⁶⁶

43. In sum, Ms. Allen has no basis to conclude that Apache’s stock price decline following the October 25, 2019 alleged partial corrective disclosure is not evidence of price impact, given that: (i) news of Mr. Keenan’s departure undisputedly caused a statistically significant decline in the price of Apache stock on October 25, 2019; (ii) Ms. Allen has not identified any other factor that may have contributed to the stock price decline that day; (iii) the Company did not provide a reason for the departure, but explicitly stated that it was “not connected to Suriname”; (iv) Mr. Keenan was considered the “Godfather” of Alpine High, and the Company and financial media publicly credited the “discovery” of Alpine High to his “innovative” work on the play; (v) all analysts that issued reports following the disclosure, as well as news commentators, cited the disappointing performance of Alpine High; and (vi) any assumptions regarding the reason(s) for Mr. Keenan’s departure are premature given that fact discovery is ongoing.

VIII. Ms. Allen Fails to Demonstrate a Lack of Price Impact Associated With the March 16, 2020 Alleged Corrective Disclosure

44. On March 16, 2020, prior to market open, *Seeking Alpha* issued a report on Apache “reveal[ing] that, in the wake of an oil price crash, enormous spending, and lack of production

¹⁶⁴ *Id.* at 5738 (emphasis added).

¹⁶⁵ *Id.* at 5732 (emphasis added).

¹⁶⁶ *See* Allen Deposition, 34:25–35:13; 157:18–21.

from Alpine High, Apache was particularly challenged amongst its E&P peers.”¹⁶⁷ The *Seeking Alpha* article noted that the Company had “shift[ed] capital away from the wet-gas rich Alpine High play which has been driving the company’s production growth,” and that “Apache also reduced Alpine High's value by \$1.4 billion.”¹⁶⁸ The analyst calculated that Apache’s “lofty debt-to-equity ratio” was “the highest among all large-cap independent oil producers”:

I think what puts Apache in a difficult spot is that its financial health isn’t great. It has a weak balance sheet marked by high levels of debt, which limits the company’s ability to use additional borrowings to fund a cash flow shortfall. At the end of last year, Apache had \$8.16 billion of debt (ex. debt associated with Altus Midstream (ALTM)), which translates into a lofty debt-to-equity ratio of almost 250% - the highest among all large-cap independent oil producers, as per my calculations.¹⁶⁹

45. As Plaintiffs have alleged, that same day, also before market open, Susquehanna Financial Group, LLLP (“Susquehanna”) issued a report in which it downgraded its rating for Apache to Neutral from Positive.¹⁷⁰ Susquehanna slashed its price target for the Company to \$9.00 from \$35.00, stating that the rating downgrade was “primarily governed by our view on balance sheet flexibility” and adding that “balance sheet flexibility is a main parameter in our stock selection process with factors such as inventory depth, capital intensity, and valuation still playing an important role in the calculus.”¹⁷¹ Consistent with the *Seeking Alpha* article also published on March 16, 2020, Susquehanna estimated that Apache’s “Net Debt/EBITDA” ratio

¹⁶⁷ Complaint, ¶315.

¹⁶⁸ *Seeking Alpha*, “The Oil Price Crash Puts Apache Corporation In A Tough Spot,” March 16, 2020, 3:35 AM.

¹⁶⁹ *Ibid.*

¹⁷⁰ Complaint, ¶315.

¹⁷¹ Susquehanna, “Sector Update: Downgrading APA, NBL, OXY to Neutral; Upgrade COG to Positive,” March 16, 2020. *See also* Complaint, ¶315; *Bloomberg First Word*, “Apache Cut to Neutral at Susquehanna; PT \$9,” March 16, 2020, 6:01 AM; *Dow Jones Newswire*, “Apache Corp Cut to Neutral From Positive by Susquehanna,” March 16, 2020, 1:06 PM.

for 2020 and 2021 would be 5.6x and 4.8x, respectively, both of which were the highest among the “International/Diversified E&Ps” and the second and third highest, respectively, among all 22 E&P companies covered by the analyst.¹⁷² According to Plaintiffs, “[a]s a direct result of the March 16, 2020 partial corrective disclosure revealing that Apache’s failed Alpine High foray severely constrained its financial position relative to its competitors, Apache’s stock price fell \$3.61 per share over two trading days, or approximately 45%, from a close of \$8.07 per share on March 13, 2020, to close at \$4.46 per share on March 17, 2020.”¹⁷³

46. Ms. Allen does not dispute that the Company-specific declines in the price of Apache common stock on March 16 and March 17, 2020 are statistically significant under my event study, as well as under her alternative event study.¹⁷⁴ Instead, she concludes that the “March 16, 2020 alleged corrective disclosure shows no price impact,” for the following three reasons:

- i. “no analyst or news story mentioned the Seeking Alpha article, let alone tied it to any price drop;”
- ii. “there was no new news [in the Seeking Alpha report] about Apache at all, let alone Alpine High;” and
- iii. “both Dr. Nye’s event study model and the alternative event study model are not applicable to this date due to increased market volatility.”¹⁷⁵

47. However, Ms. Allen’s analysis is not substantiated by evidence and incomplete, at best, thereby rendering her price impact conclusion with respect to the March 16, 2020 alleged

¹⁷² *Ibid.* (Susquehanna defined Net Debt/EBITDA as “Net Debt (gross debt less cash on hand) / EBITDA = forward year EBITDA estimate.”)

¹⁷³ Complaint, ¶316.

¹⁷⁴ Under the Nye event study model, the Company-specific declines on March 16 and 17, 2020 are statistically significant at the 100.00% and 99.99% confidence levels, respectively. (See Nye Report, Exhibit 11B.) Under Ms. Allen’s alternative event study model, the Company-specific declines on March 16 and 17, 2020 are both statistically significant at the 100.00% confidence level. (See NERA_019129.)

¹⁷⁵ Allen Report, ¶76.

corrective disclosure unreliable. As an initial matter, she does not even mention, let alone analyze, the March 16, 2020 Susquehanna report downgrading its Positive rating for Apache and slashing its price target—a disclosure allegedly revealing Apache’s “severely constrained [] financial position relative to its competitors.”¹⁷⁶ Moreover, Susquehanna’s “[s]ector [u]pdate” report clearly contained “new news about Apache” in the form of a downgraded investment recommendation, severely reduced price target, and a revised “Net Debt / EBITDA” ratio projection, which the analyst “now s[aw] ... exceeding 3.0x by the end of 2021.”¹⁷⁷ Susquehanna further remarked that, while Apache had “already announced activity reduction and ... slashed dividend payments, additional cutbacks may be necessary.”¹⁷⁸

48. Additionally, by asserting that the event study models are “not applicable to this date due to increased market volatility [starting in March 2020],”¹⁷⁹ Ms. Allen effectively fails to conduct any event study whatsoever of the March 16, 2020 alleged corrective disclosure. Indeed, she makes no attempt to account for any such changes in volatility, and instead just discards the observed statistically significant price declines under both my event study and her alternative

¹⁷⁶ Complaint, ¶¶315–316: “That same day, Susquehanna Financial Group downgraded Apache shares, highlighting a lack of ‘balance sheet flexibility’ and noting Apache’s ‘net leverage exceeding 3.0x by the end of 2021.’ As a direct result of the March 16, 2020 partial corrective disclosure revealing that Apache’s failed Alpine High foray severely constrained its financial position relative to its competitors, Apache’s stock price fell \$3.61 per share over two trading days”

¹⁷⁷ Susquehanna, “Sector Update: Downgrading APA, NBL, OXY to Neutral; Upgrade COG to Positive,” March 16, 2020.

¹⁷⁸ *Ibid.*

¹⁷⁹ Allen Report, ¶76.

event study.^{180, 181} In doing so, however, Ms. Allen not only fails to substantiate her opinion with evidence, she also fails to consider academic literature, which details how event studies can be designed to reliably control for changing market- and industry-wide volatility dynamics.¹⁸² For example, according to Ms. Allen’s colleagues at NERA, “[t]he simplest way to resolve the issues associated with performing an event study over a period of heightened volatility would be to use the disclosure period as the estimation period. One can ‘overlap’ the estimation and the disclosure period, by construction guaranteeing similar volatilities between the two periods.”¹⁸³

¹⁸⁰ Allen Report, ¶76.

¹⁸¹ Ms. Allen argues that “Dr. Nye does not even discuss how the heightened market volatility in March 2020 would affect interpretations of his event study results.” (Allen Report, ¶94.) However, contrary to Ms. Allen’s price impact analysis, which explicitly addresses the March 16, 2020 alleged corrective disclosure, none of the event dates under study in the Nye Report, which examined stock price returns to assess market efficiency, occurred in March 2020 or later. (See Nye Report, Exhibit 12.)

¹⁸² See, e.g., Mitchell, Mark L. and Jeffry M. Netter, 1994, “The Role of Financial Economics in Securities Fraud Cases: Applications at the Securities and Exchange Commission,” *The Business Lawyer*, Vol. 49, pp. 545–590 at 566 (“[I]t is important to account for [] marketwide movements, especially during periods when the market is volatile.”); and Jovanovic, Branko, and Edward Fox, NERA Economic Consulting, “Testing for Materiality in Volatile Markets,” January 12, 2010, p. 1 (“Inferences from an event study will be stronger when the period used to calculate the expected returns and expected volatility (the estimation period) and the period in which the alleged disclosure occurred (the disclosure period) are similar except for the release of news related to the alleged fraud.”).

¹⁸³ Jovanovic, Branko, and Edward Fox, NERA Economic Consulting, “Testing for Materiality in Volatile Markets,” January 12, 2010, p. 4.

49. Here, Ms. Allen asserts that “[t]he Covid pandemic, along with the oil price war between Saudi Arabia and Russia, caused significant market uncertainty during March 2020.”^{184, 185} As shown in the following table, however, if one were to modify the estimation period (*aka* the control period), as the NERA authors suggest, to overlap with the “heightened market volatility due to the Covid pandemic” during March 2020, the two-day Company-specific return on March 16 and 17, 2020 is still statistically significant at above the 95% confidence level. This is true regardless of whether one uses the market and industry indices used in the Nye Report, or the market and industry indices employed by Ms. Allen. It is also true across a range of control period lengths:¹⁸⁶

¹⁸⁴ Allen Report, ¶88. Ms. Allen describes “key dates and events during this unprecedented time period,” which include events as early as March 5, 2020, when “[OPEC] proposed production cuts, intending to ‘deal with the effects of the spreading coronavirus on demand.’” She also cites a March 9, 2020 CNN article to support her assertion that in “[e]arly 2020,” “Covid and associated shutdowns caused economic disruption and reduced demand for oil (especially in China, one of the world’s largest oil importers).” (Allen Report, ¶90.)

¹⁸⁵ At her deposition, Ms. Allen conceded that she did not attempt to alter the estimation period of her event study model in order to account for this increased volatility. (*See* Allen Deposition, 178:12–16.)

¹⁸⁶ In the following table, each control period excludes the event dates under study (*i.e.*, March 16 and March 17, 2020). *See* Campbell, John Y., Andrew W. Lo, and A. Craig MacKinlay, *The Econometrics of Financial Markets*, Princeton University Press, 1997, p. 152 (“Generally the event period itself is not included in the estimation period to prevent the event from influencing the normal performance model parameter estimates.”). *See also* Jovanovic, Branko, and Edward Fox, NERA Economic Consulting, “Testing for Materiality in Volatile Markets,” January 12, 2010 (“One must ensure that all disclosures and misrepresentations, as well as any other news associated with the fraud, are excluded from the estimation period in order to obtain a ‘clean’ benchmark.”). I note, however, that the results do not change in a meaningful way if one were to include March 16 and March 17, 2020 in the control period.

Control Period	Impact Date	Nye Industry Index		Allen Industry Index	
		Company-Specific Return	Confidence Level	Company-Specific Return	Confidence Level
1-Year Prior (Original)	3/16/2020	-15.35%	100.0%	-17.10%	100.0%
	3/17/2020	-12.69%	100.0%	-16.54%	100.0%
	2-Day Event Window	-28.04%	100.0%	-33.63%	100.0%
3/2/2020 - 4/30/2020 (2 Months)	3/16/2020	-16.02%	98.0%	-15.23%	94.7%
	3/17/2020	-12.17%	92.7%	-14.28%	93.1%
	2-Day Event Window	-28.19%	99.6%	-29.51%	99.1%
3/2/2020 - 5/29/2020 (3 Months)	3/16/2020	-15.58%	99.3%	-15.24%	98.1%
	3/17/2020	-11.59%	95.9%	-14.15%	97.1%
	2-Day Event Window	-27.18%	99.9%	-29.39%	99.8%
3/2/2020 - 6/30/2020 (4 Months)	3/16/2020	-15.47%	99.7%	-15.35%	99.2%
	3/17/2020	-11.80%	98.0%	-15.14%	99.1%
	2-Day Event Window	-27.26%	100.0%	-30.48%	100.0%
3/2/2020 - 7/31/2020 (5 Months)	3/16/2020	-15.43%	99.7%	-15.34%	99.3%
	3/17/2020	-12.79%	98.6%	-15.75%	99.4%
	2-Day Event Window	-28.22%	100.0%	-31.09%	100.0%
3/2/2020 - 8/31/2020 (6 Months)	3/16/2020	-15.29%	99.9%	-15.19%	99.6%
	3/17/2020	-12.90%	99.3%	-15.85%	99.8%
	2-Day Event Window	-28.19%	100.0%	-31.05%	100.0%

Source: Nye Report Exhibit 11; NERA_019129

50. Furthermore, Ms. Allen fails to identify any news other than the March 16, 2020 alleged corrective disclosure that could explain the statistically significant Company-specific decline in Apache's stock price on March 16 and March 17, 2020. By definition, event studies control for contemporaneous market and industry movements that may influence a specific company's stock price on a given day, thereby producing an estimate of the stock price change due to company-specific factors unrelated to such effects (*i.e.*, an estimate of the residual or company-specific return that day).¹⁸⁷ Clearly, the "Covid pandemic, along with the oil price war between Saudi Arabia and Russia," qualify as market and industry-wide events.¹⁸⁸ Yet, Ms. Allen has not explained why, under her event study model, Apache's stock price declined by a

¹⁸⁷ See Allen Report, ¶¶32, 33.

¹⁸⁸ Allen Report, ¶88; Allen Deposition at 175:16–22 (testifying that the COVID pandemic and the oil price war were "not Apache specific events," but rather ones that affected "the whole market").

staggering -17.10% on March 16, 2020 and -16.54% on March 17, 2020 after netting out such market and industry-wide effects.

51. Lastly, Ms. Allen argues that “unlike analyst reports that are issued by professional financial analysts at brokerage firms, *Seeking Alpha* is a provider of crowdsourced content and not a ‘licensed securities dealer, broker or US investment adviser or investment bank.’”¹⁸⁹

However, Ms. Allen’s attempt to discredit *Seeking Alpha* as a source of value-relevant information for investors is unsupported. Indeed, at her deposition, Ms. Allen clarified that she does not dispute that *Seeking Alpha* articles can “contain new or relevant information about a company” and can “provide evidence of price impact.”¹⁹⁰ Moreover, it is my understanding that a similar attempt by Ms. Allen to discredit price impact associated with a *Seeking Alpha* article was recently rejected.¹⁹¹

52. In sum, Ms. Allen has failed to prove a lack of price impact associated with the March 16, 2020 alleged corrective disclosure, given that (i) Ms. Allen has not considered the full set of information released on March 16, 2020 that Plaintiffs allege was corrective (*i.e.*, the Susquehanna report); (ii) she admittedly fails to put forth an event study model that, in her opinion, is “applicable” to March 16 and 17, 2020 and supportive of her opinion;¹⁹² (iii) applying “[t]he simplest way to resolve the issues associated with performing an event study over a period

¹⁸⁹ Allen Report, ¶78.

¹⁹⁰ Allen Deposition, 182:18–25.

¹⁹¹ See, e.g., *St. Clair Cnty. Employees’ Ret. Sys. v. Acadia Healthcare Co., Inc.*, 2022 WL 4598044, at *8 (M.D. Tenn. Sept. 30, 2022), where the court certified a class, finding “that Defendants [] failed to prove a lack of price impact as to the *Seeking Alpha* article.” It is my understanding that Ms. Allen was retained by defendants as an expert in that matter.

¹⁹² Allen Report, ¶76.

of heightened volatility”¹⁹³ yields Company-specific returns on March 16 and 17, 2020 that are statistically significant at above Ms. Allen’s 95% confidence level threshold; (iv) Ms. Allen has not identified any other information disclosed on March 16, 2020 that could explain the Company-specific declines in Apache stock on March 16 and 17, 2020; and (v) she provides no reliable basis or authority to discredit *Seeking Alpha* as a source of value-relevant information to investors.

IX. Ms. Allen’s “Big Picture Analysis” Fails to Demonstrate That the Alleged Misstatements and Omissions Lacked Price Impact During Her “Focus Period”

53. Ms. Allen argues that “a big picture analysis is consistent with no price impact” during the “Focus Period.”¹⁹⁴ Specifically, she claims that: (i) during the Focus Period, “there was no change in the market’s expectations about Alpine High’s reserves or the mix of oil and wet gas vs. dry gas,” and that “analysts maintained their view that Alpine High was a gas-weighted, NGL-rich play”;¹⁹⁵ (ii) “Apache’s stock moved in-line with the E&P industry during the Focus Period;”¹⁹⁶ and (iii) “downward changes in expectations of Alpine High, including decisions to reduce production and drilling, were due to changes in commodity prices during the Focus Period and were not in relation to any new understanding of the reserves or reserve mix at Alpine High.”¹⁹⁷

54. However, Ms. Allen’s “big picture analysis” is misleading for a number of reasons. Most notably, Ms. Allen seemingly disregards the fact that Apache stock traded in an efficient market

¹⁹³ Jovanovic, Branko, and Edward Fox, NERA Economic Consulting, “Testing for Materiality in Volatile Markets,” January 12, 2010.

¹⁹⁴ Allen Report, §VIII.

¹⁹⁵ Allen Report, ¶102 (and more generally Allen Report, §VII.A).

¹⁹⁶ Allen Report, ¶103

¹⁹⁷ Allen Report, ¶107.

(a fact she assumes was true throughout the Class Period),¹⁹⁸ which implies that its “price reflected the information disclosed to the market, and promptly responded to the disclosure of new, unexpected, value relevant information.”¹⁹⁹ Thus, immediately preceding each of the five alleged corrective disclosures, Apache’s efficient stock price would have already reflected the changing industry dynamics Ms. Allen identifies during the Focus Period, including the observed decline in commodity prices, as well as revised analyst expectations concerning Apache’s prospects for reasons unrelated to the alleged fraud. As a corollary, market efficiency dictates that the price declines observed following each of the alleged corrective disclosures must have been in response to incremental, new information revealed on those days alone. If Ms. Allen were correct that “Apache’s stock moved in-line with the E&P industry during the Focus Period,”²⁰⁰ then one would expect to see Apache’s stock price to have declined in tandem with other stocks in the E&P industry on the corrective disclosure dates. However, this is simply not the case. As shown in the following table, Apache’s stock price decline far exceeded the decline in the industry (if any) on each of the alleged corrective disclosure dates during the Class Period, including during Ms. Allen’s Focus Period.

¹⁹⁸ Allen Report, ¶1.

¹⁹⁹ Nye Report, ¶60.

²⁰⁰ Allen Report, ¶103.

APA Stock Price Return Compared to Industry on Alleged Corrective Disclosure Impact Dates			
Impact Date	APA Actual Return	Nye Industry Index ¹	Allen Industry Index ²
10/10/2017	-7.39%	-0.11%	-0.06%
2/22/2018	-6.32%	1.56%	2.44%
4/23/2019	-1.78%	-0.22%	-0.16%
4/24/2019	-2.61%	-0.60%	-1.90%
4/25/2019	-4.00%	-1.28%	-1.53%
4/26/2019	-2.94%	-1.75%	-1.44%
10/25/2019	-4.99%	0.51%	2.30%
3/16/2020	-32.34%	-14.01%	-14.08%
3/17/2020	-18.32%	-1.95%	-0.94%

[1] Nye Industry Index: S&P 500 Oil & Gas Exploration and Production Index (S5OILP) excluding Apache.

[2] Allen Industry Index: S&P 500 Oil & Gas Exploration and Production Select Index (SPSIOP) excluding Apache.

Source: Nye Report Exhibit 11; NERA_019129

55. Moreover, to the extent value-relevant information concerning the E&P industry or the broader stock market was released contemporaneously with the Apache-specific disclosures on these days, both my and Ms. Allen's regression models are designed to control for such effects. Indeed, our regression models include control variables for broad stock market effects and the E&P industry in particular,^{201, 202} thereby allowing us to remove such contemporaneous influences from our estimates of Apache's Company-specific stock price return (aka "abnormal" return) in response to the alleged corrective disclosures. As shown in the following table,

²⁰¹ Ms. Allen and I both control for broad market effects using the S&P 500 Index, while for industry effects we use the "S&P Oil & Gas Exploration & Production Select Industry Index" and the "S&P 500 Oil & Gas Exploration and Production Index," respectively.

²⁰² Allen Report, ¶28:

An event study is a commonly accepted statistical analysis that measures the movement in a stock's price after an event or public announcement, typically adjusting for the movement in the overall market and/or industry. Academics often use an event study to determine how stock prices respond to new information. An event study typically uses a statistical analysis called a regression to estimate the relationship between the company's daily stock returns and the daily returns of market and/or industry indices. Using the regression results and the returns of the indices, the predicted stock price movement and abnormal stock price movement (or the amount the stock price moves in excess of the predicted amount) can be calculated for the event/period being tested.

contrary to the notion that “Apache’s stock moved in-line with the E&P industry,”²⁰³ both my and Ms. Allen’s regression models estimate that Apache’s stock price decline far exceeded what our models predicted should have occurred given changing market and industry dynamics on each of the alleged corrective disclosure dates during the Class Period, including during Ms. Allen’s Focus Period:

	Alleged Corrective Disclosure Impact Date	Nye Event Study		Allen Alternative Event Study	
		Company-Specific Return	Confidence Level	Company-Specific Return	Confidence Level
	10/10/2017	-7.30%	100.00%	-7.29%	100.00%
	2/22/2018	-8.08%	100.00%	-8.67%	100.00%
Allen Focus Period	4/23/2019	-1.45%	70.64%	-1.37%	67.77%
	4/24/2019	-2.04%	86.06%	-0.75%	41.28%
	4/25/2019	-2.67%	94.62%	-2.47%	92.38%
	4/26/2019	-1.01%	53.29%	-1.31%	65.11%
	10/25/2019	-5.55%	99.92%	-7.37%	100.00%
	3/16/2020	-15.35%	100.00%	-17.10%	100.00%
	3/17/2020	-12.69%	99.99%	-16.54%	100.00%

Source: Nye Report Exhibit 11; NERA_019129

56. Furthermore, the fact that Apache’s stock price was generally correlated with those of other stocks in the E&P industry, as well as commodity prices, is entirely expected in an efficient market. Indeed, it is well established that the “Law of One Price implies that the price of a security should equal the present value of the expected cash flows an investor will receive from owning it.”²⁰⁴ Given that E&P companies generate cash flows by selling natural gas, crude oil, and/or natural gas liquids, it should be the case that their stock prices are mutually dependent on the prevailing market prices for such commodities. However, the notion that, during the Focus Period, Apache’s stock price was suddenly more “in-line with the E&P industry,”²⁰⁵ is nonsense.

²⁰³ Allen Report, ¶103.

²⁰⁴ Berk, Jonathan and Peter DeMarzo, 2007, *Corporate Finance*, Pearson Education, Inc., 1st Ed., Ch. 9, p. 245.

²⁰⁵ Allen Report, ¶103.

As shown in the following table, not only was Apache's stock price highly correlated with the E&P industry throughout the entire Class Period, but its daily returns exhibited virtually the same ~75% correlation during both the Focus Period and the Pre-Focus Period (*i.e.*, the portion of the Class Period for which Ms. Allen does not dispute price impact).

Apache Stock Vs. The S&P Oil & Gas Exploration & Production Select Industry Index		
Period	Date Range	Daily Return Correlation
Class Period	9/7/2023 - 3/13/2020	74.62%
Pre-Focus Period	9/7/2023 - 2/22/2018	74.67%
Focus Period	2/23/2018 - 3/13/2020	74.84%

57. Last, Ms. Allen's contention that the decline in Apache's stock price during her Focus Period was entirely driven by changes in the E&P industry is contradicted by the Company's own analysis. Specifically, in January 2020, Apache's then-Chairman of the Board, "John Lowe requested that Management review for the Board the history of the Alpine High investment, an assessment of key decisions taken along the way and an analysis of the estimated scale of the loss incurred."²⁰⁶ The resulting 35-page presentation provides a "5 Year Lookback on APA Performance With Primary Focus on Alpine High,"²⁰⁷ highlighting the following key findings:

[A] series of decisions related to Alpine High resulted in a significant loss of \$2-3 billion, or \$6.00-8.00 per share. Management accepts full and unconditional responsibility for this outcome. While the state of APA and the context of the timeframe for the Alpine High investment both help to explain why

²⁰⁶ APACHE_00000752. The "Purpose" of the presentation is described as follows:

This review will look at all aspects of the chronology of Alpine High and the quality of decision-making along the way. It will do this in the context of the state of APA at the beginning of 2015, other strategic initiatives considered and/or implemented during the last five years, and where APA stands today. It will also look at the impacts that Alpine High has had on Executive Compensation during the same period of time and compare that to the 'Shareholder Experience'. The purpose is to present a balanced view to whether there has been alignment between Executive Management and Shareholders with respect to the full five year period.

²⁰⁷ APACHE_00000751.

Alpine High seemed so attractive at the time, it does not excuse the outcome, nor management responsibility. ...

The APA share price has delivered a negative average annual return for investors both on an absolute basis (-8%) as well as relative to our TSR Peers (-3%) over the entirety of this tenure. ... This view includes the benefit of the recent share price improvement following on from the discovery in [Redaction – Confidential]. **Excluding that price impact, the outcomes are still very well aligned, just worse on both sides, with average annual Shareholder Returns of -16% absolute and -9% relative to our TSR Peers**²⁰⁸

58. Overall, the Company estimated that “aggregate value lost” from Alpine High was “in a range of \$2.0B to \$3.0B,”²⁰⁹ and page 16 of the presentation describes how APA under-performed compared to its TSR Peer group during 2017 and 2019 (*i.e.*, part of Ms. Allen’s Focus Period):

As shown on the next slide, over the last five years, APA share price has gone through periods of mostly under-performance or even-performance and brief periods [of] over-performance, relative to that of our TSR Peer group.

Over-performance came around two significant announcements - Alpine High and [Redaction – Confidential].

Under-performance came in two extended periods, both related to Alpine High.

The first period extended through most of 2017. This was the timeframe it became evident that Alpine High would predominantly be a rich gas play. Many investors simply did not like this.

The second period began with the gas and NGL price collapse in 2Q19 and extended through the rest of 2019 as investors came to believe this would result in reduced activity at Alpine High.

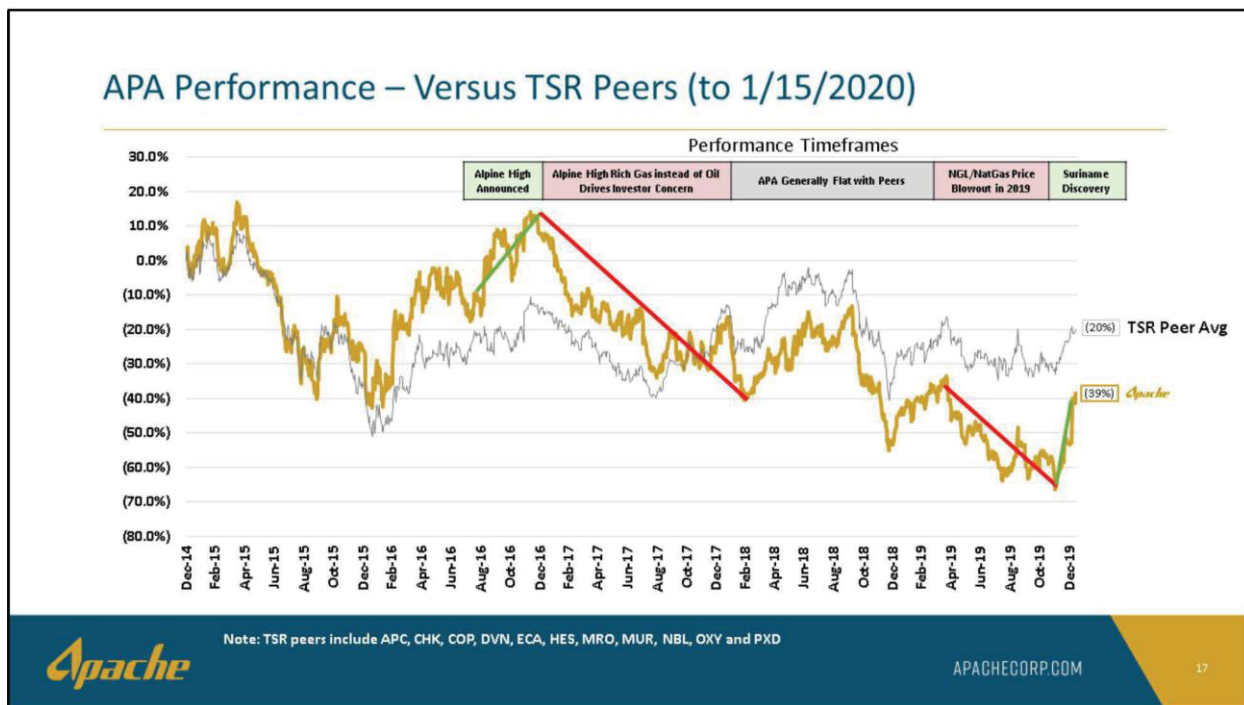
As referenced on the prior slide, Alpine High has probably resulted in \$6.00-8.00 of value impact on APA’s share price. Most of this value probably came out during 2017, **with any remaining value being lost in 2019.**²¹⁰

²⁰⁸ APACHE_00000754 (emphasis added).

²⁰⁹ APACHE_00000765.

²¹⁰ APACHE_00000766 (emphasis added).

59. As shown below, page 17 of the presentation graphically depicts Apache's "[u]nder-performance" during these "two extended periods, both related to Alpine High."²¹¹



60. In sum, Ms. Allen's "big picture analysis" of the Focus Period fails to demonstrate that the alleged misrepresentations lacked price impact, given that: (i) Apache's stock price decline far exceeded the decline in the industry (if any) on each of the alleged corrective disclosure dates during the Focus Period; (ii) both my and Ms. Allen's regression models estimate that Apache's stock price decline far exceeded what our models predicted should have occurred given changing market and industry dynamics on each of the alleged corrective disclosure dates during the Focus Period; (iii) Apache's stock price exhibited approximately the same level of daily return correlation with the E&P industry throughout the entire Class Period; and (iv) Ms. Allen's contention that the decline in Apache's stock price during her Focus Period was entirely driven by changes in the E&P industry is contradicted by the Company's own internal analysis.

²¹¹ APACHE_00000767.

X. Ms. Allen Improperly Conflates Statistical Significance and Price Impact

61. Much of Ms. Allen’s opinion that the alleged misrepresentations lacked price impact during the Focus Period is premised on her unjustified prerequisite that price impact can only be demonstrated when contemporaneous stock price changes are statistically significant at or above the 95% confidence level. According to Ms. Allen:

[W]hen analyzing the statistical significance of a price reaction to an event, the 5% statistical significance level (*i.e.*, the 95% statistical confidence level) is the commonly applied standard. If a price reaction is *not* statistically significant, it means that it is within the range of normal expected daily variation in stock prices and cannot be statistically distinguished from zero.²¹²

Notably, Ms. Allen does not dispute that Apache’s stock price declines following two of the three alleged corrective disclosures she analyzed during her Focus Period are statistically significant at or above her 95% threshold (*i.e.*, October 25, 2019 and March 16, 2020).²¹³

However, she does argue that: (i) “there was no statistically significant decline in Apache’s stock price following the April 23, 2019 press release”;²¹⁴ (ii) “there was no statistically significant price decline” on “four additional events during the Focus Period in Section V of [Plaintiffs’] Complaint”;²¹⁵ and (iii) “[t]here was no statistically significant increase on 12 of the 13 trading days following the alleged misrepresentations” made during her Focus Period.²¹⁶ Contrary to

²¹² Allen Report, ¶29 (emphasis in original).

²¹³ Under both the event study used in the Nye Report and the alternative event study used in the Allen Report, Apache’s stock price declines on October 25, 2019, March 16, 2020, and March 17, 2020 are statistically significant at above the 99.0% confidence level. (*See* Nye Report, Exhibit 11B; NERA_019129.) Thus, Ms. Allen’s arguments about a lack of statistical significance are limited to the April 23, 2019 alleged corrective disclosure.

²¹⁴ Allen Report, ¶48 (emphasis removed).

²¹⁵ Allen Report, ¶46, footnote 55, discussing “October 31, 2019, January 9, 2020, February 26–27, 2020, and March 12, 2020.”

²¹⁶ Allen Report, ¶36.

Ms. Allen’s opinion, as discussed further below, a failure to find statistical significance at a particular confidence level does **not** allow a financial economist to conclude there is evidence of a lack of price impact.

62. As an initial matter, it is important to note that the confidence level associated with a given company-specific return is measured as one minus the “*p*-value” of that return, where the *p*-value represents the conditional probability of observing a return as extreme as, or more extreme than, the return at issue. Thus, consistent with the standard frequently employed by social scientists, statistical significance in the context of securities litigation merely indicates that a given company-specific return is a relatively rare occurrence.²¹⁷ For example, statistical significance at the 95% confidence level (*i.e.*, a return with a *p*-value less than or equal to 5%) merely connotes that the return under study is among the top 5% of “normal” returns observed during the control period in terms of absolute magnitude (*i.e.*, either among the bottom 2.5% of the most negative returns or among the top 2.5% of the most positive returns). Ms. Allen acknowledges this well-known statistical fact when discussing a price reaction that is “statistically significant at the 23% [significance] level (*i.e.*, the *p*-value is 0.23),” stating that “it means that there is only a 23% chance that a price reaction of the same magnitude would be observed given the range of normal stock price volatility.”²¹⁸

²¹⁷ Kaye, David H. and David A. Freedman, “Reference Guide on Statistics,” in Federal Judicial Center, *Reference Manual on Scientific Evidence*, National Academies Press, 3rd ed., 2011 (“Reference Guide on Statistics”), pp. 250–252. (“Statistical significance is determined by comparing a *p* [*i.e.*, the probability of observing data as extreme as, or more extreme than, the actual data—given that the null hypothesis is true] to a preset value, called the significance level.” Thus, statistical significance “is merely a label for a certain kind of *p*-value.”) (The Reference Guide on Statistics is cited at Allen Report, footnote 37.)

²¹⁸ Allen Report, ¶30.

63. However, without any basis, Ms. Allen then leaps to the conclusion that “if Dr. Nye’s event study yields no statistically significant price reaction, it would provide evidence of no price impact.”²¹⁹ This is curious, given that Ms. Allen’s null hypothesis is effectively that the alleged misrepresentations or corrective events had **no effect** on Apache’s stock price. When testing the null hypothesis of “no effect,” a statistically significant result will have a small *p*-value (*i.e.*, less than 5%, when applying the 95% confidence level), thereby indicating “the observed data are far from what is expected under the null hypothesis—too far to be readily explained by the operations of chance. That discredits the null hypothesis.”²²⁰ However, while the *p*-value “gives the chance of getting evidence against the null hypothesis as strong or stronger than the evidence at hand,”²²¹ it “does not give the chance that the null is true,”²²² nor “the probability that ... the results occurred because of chance.”²²³ Indeed, “[a]ccording to the frequency theory of statistics, there is no meaningful way to assign a numerical probability to the null hypothesis.”²²⁴

64. Thus, Ms. Allen’s conclusion that certain events had no price impact because they did not induce a statistically significant stock price decline at or above the 95% confidence level is a fundamental error of statistical inference since she improperly infers that her null hypothesis is true—*i.e.*, that alleged misrepresentations or corrective events had **no effect**. To see why, consider that, according to Ms. Allen’s regression model, Apache’s Company-specific return

²¹⁹ Allen Report, ¶31.

²²⁰ Reference Guide on Statistics, p. 251.

²²¹ *Id.*, p. 250.

²²² *Ibid.*

²²³ Hubbard, Raymond and R. Murray Lindsay, 2008, “Why *P* Values Are Not a Useful Measure of Evidence in Statistical Significance Testing,” *Theory & Psychology*, Vol. 18, Issue 1, pp. 69–88 at 70.

²²⁴ Reference Guide on Statistics, p. 250.

of -1.37% on April 23, 2019 is also not statistically significantly different from -4.00% (at the 95% confidence level).²²⁵ Thus, if one were to commit the fallacy of accepting any null hypothesis that is not rejected at a 95% significance level (as Ms. Allen does), one would have to accept that both of the following propositions are true: (i) the true Company-specific return is zero, and (ii) the true Company-specific return is -4.00%. Obviously, both cannot be true, which is precisely why accepting a null hypothesis is fallacious. Indeed, for the April 23, 2019 alleged corrective disclosure, every Company-specific return between -4.11% and +1.36% would be accepted as true based on Ms. Allen's flawed methodology. The same logic applies to all of the alleged misrepresentations and corrective events, as well as every other day during the Class Period.

65. Furthermore, "[i]t is well known among applied scientists that a lack of impact or effect is not sufficiently established by a failure to demonstrate statistical significance. A failure to reject the null hypothesis of no effect may be the result of low statistical power when an important effect actually exists and the null hypothesis of no effect is in fact false."²²⁶ Ms. Allen's acceptance of the null hypothesis is particularly improper, given the well-known fact that single-firm event studies, such as those she conducted for Apache stock, have low statistical

²²⁵ Source: NERA_019129. Under Ms. Allen's event study, Apache's stock had a Company-specific return of -1.37%, and a standard error of 1.39%. Accordingly, a hypothesis test of whether the estimated Company-specific return of -1.37% can be statistically distinguished from -4.0% yields a t-statistic of 1.89 (*i.e.*, the quantity -1.37% minus -4.0%, divided by 1.39%), which is statistically significant at the 94.1% confidence level, under Ms. Allen's event study.

²²⁶ Hoenig, John M. and Dennie M. Heisey, 2001, "The Abuse of Power: The Pervasive Fallacy of Power Calculations for Data Analysis," *The American Statistician*, Vol. 55, No. 1, pp. 1–6 at 1.

“power,”²²⁷ and are thus prone to “accepting the null hypothesis when the alternative hypothesis is true” (*i.e.*, prone to making Type II errors).²²⁸ As noted by the *Barclays* court in the U.S.

District Court for the Southern District of New York:

In academic research, event studies are almost exclusively conducted with large samples of securities from a number of different firms. When the event study is used in a litigation to examine a single firm, the chances of finding statistically significant results decrease dramatically. “[T]he event study technique improves as the number of firms in the sample increase, as the number of days in the announcement window decrease, and as the alternative of a larger abnormal return is considered against the null hypothesis of zero abnormal return.” As to the latter point, neither the Supreme Court nor the Second Circuit has indicated whether the abnormal return must meet a particular threshold level, yet the success of an event study will depend on the size of the return it attempts to measure. The following example from the literature highlights the problems inherent in placing too much emphasis on event studies to measure market efficiency:

[i]n a sample size of twenty-five companies, the probabilities of detecting an abnormal return (or an effect on the stock price) of 0.5%, 1% and 2% is 24%, 71% and 100% respectively. But if the sample size is increased to 100 companies, the probabilities of detecting an abnormal return of 0.5%, 1%, and 2% is 71%, 94%, and 100% respectively. Thus, there is significant difference in detecting an abnormal return, or effect on the stock price, depending on the size of the event study.²²⁹

66. Consistent with *Barclays*, the Second Circuit has stated that “[e]vent studies offer the seductive promise of hard numbers and dispassionate truth, but methodological constraints limit their utility in the context of single-firm analyses.... Notably, small sample sizes may limit statistical power, meaning that only very large-impact events will be detectible.”²³⁰ In other words, single-firm event studies are inclined not to find statistical significance, when in fact a

²²⁷ *Carpenters Pension Trust Fund of St. Louis, et al. v. Barclays PLC, et al.*, Case No. 12-cv-5329 (SAS), Opinion and Order, dated August 20, 2015 (“*Barclays*”), pp. 33–35 (internal citations omitted).

²²⁸ Reference Guide on Statistics, p. 254, footnote 106.

²²⁹ *Carpenters*, pp. 33–35.

²³⁰ *In re Petrobras Securities*, Case No. 16-1914-cv (2d Cir. Jul. 7, 2017), pp. 64, 65 (internal citations omitted).

company-specific return was caused by the release of material, value-relevant information on a given event date.²³¹

67. Thus, while a finding of statistical significance under a single-firm event study is powerful evidence of price impact, the absence of statistical significance does not, as Ms. Allen erroneously claims, “demonstrate[] ... no price impact.”²³² Rather, contrary to Ms. Allen’s blind acceptance of the null hypothesis, given the low statistical power of single-firm event studies, it is entirely plausible that “[t]he null is false—but, by chance, the data happened to be of the kind expected under the null.”²³³ Indeed, “[w]hen a study with low power fails to show a significant effect, the results may therefore be more fairly described as inconclusive than negative. The proof is weak because power is low.”²³⁴

68. Additionally, there is no requirement in economics that material information must induce a price reaction that is considered to be statistically significant at a particular level. Indeed, the notion that material information must induce a statistically significant price reaction is incongruous with the fundamental tenets of financial economics. Specifically, the science of financial economics is predicated on: (i) the “Law of One Price,” which “implies that the price of a security should equal the present value of the expected cash flows an investor will receive from owning it”;²³⁵ (ii) the axiom of “semi-strong” form market efficiency, which states that “all publicly available information regarding the prospects of a firm must be reflected already in the

²³¹ *Id.*, p. 65, footnote 30, citing Alon Brav & J. B. Heaton, 2015, *Event Studies in Securities Litigation: Low Power, Confounding Effects, and Bias*, 93 Wash. U. L. Rev. 583.

²³² Allen Report, ¶52.

²³³ Reference Guide on Statistics, p. 254.

²³⁴ *Ibid.*

²³⁵ Berk, Jonathan and Peter DeMarzo, 2007, *Corporate Finance*, Pearson Education, Inc., 1st Ed., Ch. 9, p. 245.

[security's] price";²³⁶ and (iii) arbitrage pricing theory, which posits that security returns are determined by their systematic risk exposure, "plus another (zero expected value) random amount attributable to firm-specific events."²³⁷ Absent from these widely-accepted scientific principles is any reference to statistical significance. Accordingly, Ms. Allen's assertion that the lack of any statistically significant price reaction at or above the 95% confidence level implies a lack of price impact is simply false. The science of financial economics explicitly allows for security prices to efficiently adjust to new information that even minimally affects the "present value of the expected cash flows an investor will receive from owning it," which by definition will not induce a price reaction large enough to qualify as being statistically significant at the 95% confidence level.

69. By design, the calculation of statistical significance does not entail any analysis of company-specific news. Thus, while statistical significance may be an objective manner in which to establish whether a return is extreme enough to be considered rare, it is not a necessary condition to demonstrate price impact, nor does the lack of statistical significance constitute statistical proof of the absence of price impact. As "the goodness or badness of a hypothesis cannot be decided on merely statistical grounds,"²³⁸ the determination of whether company-specific news is economically material must at least consider the content of the news itself, in order to determine if it can plausibly explain the contemporaneous price movement.²³⁹ Indeed, it

²³⁶ Bodie, Zvi, Alex Kane, and Alan J. Marcus, 2008, *Investments*, McGraw-Hill/Irwin, 7th ed., Ch. 11, p. 361.

²³⁷ *Id.* at 332.

²³⁸ McCloskey, Donald N., 1985, "The Loss Function Has Been Mislaid: The Rhetoric of Significance Tests," *The American Economic Review*, Vol. 75, No. 2, Papers and Proceedings of the Ninety-Seventh Annual Meeting of the American Economic Association, p. 203.

²³⁹ Bodie, Zvi, Alex Kane, and Alan J. Marcus, 2008, *Investments*, McGraw-Hill/Irwin, 7th ed., Ch. 11, pp. 366–368.

is my understanding that “the premise that statistical significance is the only reliable indication of causation ... is flawed,” and that such a “categorical rule would ‘artificially exclud[e]’ information that ‘would otherwise be considered significant to the trading decision of a reasonable investor.’”²⁴⁰ As acknowledged by the Third Circuit, “it does not necessarily follow from the mere absence of a statistically significant change in the stock price that there was no price impact.”²⁴¹ The Third Circuit’s view has been applied by district courts in other circuits, including in the Fifth Circuit.²⁴²

²⁴⁰ *Matrixx Initiatives, Inc. v. Siracusano*, 563 U.S. 27 (2011), quoting *Basic Inc. v. Levinson*, 485 U.S. 224 (1988).

²⁴¹ *Vizirgianakis v. Aeterna Zentaris, Inc.*, No. 18-2474, 2019 WL 2305491, at *2 (3d Cir. May 30, 2019) (quoting *West Palm Beach Police Pension Fund v. DFC Global Corp.*, No. 13-6731, 2016 WL 4138613, *14 (E.D. Pa. Aug. 4, 2016)). See also, e.g., *Carpenters*, 310 F.R.D. at 95 (“The failure of an event study to find price movement does not prove lack of price impact with scientific certainty.”).

²⁴² See, e.g., *Rooney v. EZCORP, Inc.*, 330 F.R.D. 439 450 (W.D. Tex. 2019) (“absence of a statistically significant price adjustment does not show the stock price was unaffected by the misrepresentation”); *St. Clair County Employees’ Retirement System v. Acadia Healthcare Company, Inc.*, 2022 WL 4598044, at *6 (M.D. Tenn. Sept. 30, 2022):

Defendants have still not rebutted the presumption “because their price impact arguments rely on a statistical fallacy[;] [c]ontrary to Defendants’ argument, the existence of non-statistically-significant stock price declines does not prove the absence of price impact.” *Monroe Cnty. Employees’ Ret. Sys.*, 332 F.R.D. at 393; see *id.* (“failure to find statistical significance does not prove that information had no role in the observed stock price adjustment. Rather, [n]on-significance means indeterminate with respect to finding the cause of a stock price movement; it does not mean that there was no decline or that the decline was necessarily caused by factors other than the corrective disclosure.”) (internal quotations and citations omitted); *id.* at 394 (“An event study tests whether one can reject a null hypothesis. For price impact purposes, the null hypothesis under examination is that the stock price of the subject company was not impacted by the alleged misrepresentations. It is axiomatic that ‘failure to rebut the null hypothesis does not necessarily mean that a misrepresentation had no price impact.’” (quoting Jill E. Fisch et al., *The Logic and Limits of Event Studies in Securities Fraud Litigation*, 96 Tex. L. Rev. 553, 611 (2018))); see, e.g., *Rooney v. EZCORP, Inc.*, 330 F.R.D. 439, 450 (W.D. Tex. 2019) (“A statistically significant price adjustment following a corrective disclosure is evidence the original

XI. Use of a Multi-Day Event Window Is a Reliable and Scientific Methodology for Estimating Price Impact

70. Ms. Allen states that “if new information material to investors is disclosed in an efficient market, one would expect an almost immediate reaction in the stock price to the first public announcement of such material news.”²⁴³ However, while some events, such as earnings announcements, take place at a pre-determined time, when traders can prepare themselves to act rapidly to the release of material news, it is not always a clear-cut press release or other scheduled announcement that leads to the market becoming aware of value-relevant information. Indeed, unexpected events can convey complex ramifications to firm value. Though investors may be immediately apprised of an event’s occurrence, determining the full price impact of such an event is not necessarily an instantaneous undertaking, particularly as different traders with the same information come to different conclusions as to the true price impact, and need to find willing counterparties with which to trade.

71. Indeed, asset pricing theory posits that the presence of uninformed traders and/or transactions costs induces informed traders (*i.e.*, investors that appreciate the true price impact of newly disseminated information) to refrain from immediately trading upon the arrival of material

misrepresentation did, in fact, affect the stock price. The converse, however, is not true—the absence of a statistically significant price adjustment does not show the stock price was unaffected by the misrepresentation.”); *Di Donato v. Insys Therapeutics, Inc.*, 333 F.R.D. 427, 444 (D. Ariz. 2019) (“The lack of statistically significant proof that a statement affected the stock price is not statistically significant proof of the opposite, *i.e.*, that it did not actually affect the stock price.”).

²⁴³ Allen Report, ¶26. *See also*: Allen Report, footnote 58 (“The press release was issued before the market opened on April 23, 2019 and thus any reaction to the press release, in an efficient market, would be expected on April 23, 2019.”); Allen Report, footnote 72 (“The media reports were issued during market hours on October 25, 2019 and thus any reaction to the news, in an efficient market, would be expected on October 25, 2019.”); and Allen Report, footnote 93 (“The article was released before the market opened on March 16, 2020 and thus any reaction to the news, in an efficient market, would be expected on March 16, 2020.”).

information.^{244, 245} Instead, even in generally efficient markets, informed trading occurs in a relatively gradual fashion so as to maximize the profit obtainable from informational advantage, thereby causing market prices to converge to fundamental value less than instantaneously. Moreover, when information is difficult to interpret (*i.e.*, complex), Dow and Gorton (1993) theorize that “the pattern of the price response over time may be so complicated that there is no apparent relationship between the arrival of new information and the price,” and that “[t]he potentially complex price response is caused by the complexity of the information that the traders receive.”²⁴⁶ Zhang (2006) also finds that “greater information uncertainty leads to relatively lower future stock returns following bad news and relatively higher future returns following good news, suggesting that uncertainty delays the flow of information into stock prices.”²⁴⁷ Thus, while generally efficient market prices may not always reflect fundamental value immediately, they do change in accordance with fundamental value via the market trading mechanism. But trading takes time.

72. Contrary to Ms. Allen’s assertion that “one would expect an almost immediate reaction in the stock price to the first public announcement of such material news,” academic event studies often consider the price impact of material information over multi-day event windows. For

²⁴⁴ See, *e.g.*, Grossman, Sanford J. and Joseph E. Stiglitz, 1980, “On the Impossibility of Informationally Efficient Markets,” *The American Economic Review*, Vol. 70, Issue 3, pp. 393–408; and Kyle, Albert S., 1985, “Continuous Auctions and Insider Trading,” *Econometrica*, Vol. 53, No. 6, pp. 1315–1335.

²⁴⁵ Transactions costs include directly observed costs such as trade commissions and bid-ask spreads, as well as indirect costs associated with the gathering and analyzing information pertinent to fundamental value.

²⁴⁶ Dow, James and Gary Gorton, 1993, “Trading, Communication and the Response of Asset Prices to News,” *The Economic Journal*, Vol. 103, Issue 418, pp. 639–646 at 639.

²⁴⁷ Zhang, X. Frank, 2006, “Information Uncertainty and Stock Returns,” *The Journal of Finance*, Vol. 61, pp. 105–136 at 106.

example, Mitchell and Netter (1994), authored by former SEC staff, states that one-, two-, and three-day event windows are commonly used in securities litigation:

[I]n many securities fraud cases the relevant information is revealed slowly over time, while during the same period investors receive other, sometimes unrelated, information about the firm(s) in question. In the latter case, it is relatively difficult to choose an appropriate window. The main advice is to carefully identify the exact dates during which the information in question reached the market, and then restrict the window to a short period if possible, generally two or three days around each release of new information.²⁴⁸

73. Similarly, MacKinlay (1997), a widely cited academic primer on event study analysis, explicitly allows for event windows longer than one day, stating that “[e]ven if the event being considered is an announcement on a given date it is typical to set the event window length to be larger than one. This facilitates the use of abnormal returns around the event day in the analysis.”²⁴⁹ Campbell, Lo, and MacKinlay (1997), a well-known text on financial econometrics, also describes the event window as commonly being one or two days:

For example, if one is looking at the information content of an earnings announcement with daily data, the event will be the earnings announcement and the event window might be the one day of the announcement. In practice, the event window is often expanded to two days, the day of the announcement and the day after the announcement.²⁵⁰

74. Tabak and Dunbar (2001), published in the *Litigation Services Handbook* and co-authored by two prominent NERA economists who have testified as expert witnesses, including

²⁴⁸ Mitchell, Mark L. and Jeffry M. Netter, 1994, “The Role of Financial Economics in Securities Fraud Cases: Applications at the Securities and Exchange Commission,” *The Business Lawyer*, Vol. 49, pp. 545–590 at 558, 559.

²⁴⁹ MacKinlay, A. Craig, 1997, “Event Studies in Economics and Finance,” *Journal of Economic Literature*, Vol. 35, pp. 13–39 at p. 19. According to Google Scholar, MacKinlay (1997) has been cited by at least 7,266 other academic publications.

²⁵⁰ Campbell, John Y., Andrew W. Lo, and A. Craig MacKinlay, *The Econometrics of Financial Markets*, Princeton University Press, Princeton, 1997, p. 151.

on behalf of defendants, in numerous class action securities cases, even states that event windows as long as five days can be used:

In securities fraud cases, many experts have adopted the convention of looking at one-day, two-day, or five-day periods following an announcement. The most recent academic pronouncement expresses support for the shorter one-day or two-day window, though it recognizes that in practice, analysts often use longer windows.²⁵¹

Consistent with this guidance from her NERA colleagues, as described above, Ms. Allen herself used a three-day stock price reaction following an alleged corrective disclosure to calculate plaintiff's damages under Section 10(b) in *Beckel v. Fagron Holdings USA, LLC*.^{252, 253}

75. Thus, it is clear that practitioners of event studies, whether financial economists conducting research in academia or in the arena of securities litigation, agree that the use of a multi-day event window is a reliable and scientific methodology for estimating the price impact of certain corporate events in a manner that is consistent with market efficiency. Indeed, as described in the Nye Report, in 2014, the Supreme Court acknowledged the debate among economists about the efficiency of capital markets and refused to “endorse ‘any particular theory of how quickly and completely publicly available information is reflected in market price.’”²⁵⁴

²⁵¹ Tabak, David I., and Frederick C. Dunbar, 2001, “Materiality and Magnitude: Event Studies in the Courtroom,” in *Litigation Services Handbook: The Role of the Financial Expert*, John Wiley & Sons, Inc., 3rd Ed., Ch. 19, pp. 1–22 at 4.

²⁵² *Supra* at ¶22, citing the Allen *Beckel* Report, ¶¶22–26.

²⁵³ At her deposition, Ms. Allen conceded that it is not her opinion that news is always fully impounded into a company's stock price within one trading day. (See Allen Deposition, 124:14–17.)

²⁵⁴ Nye Report, ¶17, quoting *Halliburton II*, 134 S. Ct. 2398, 2403 (2014), quoting *Basic, Inc. v. Levinson*, 485 U.S. 224, 248 at n. 28.

XII. Ms. Allen’s Alternative Event Study Does Not Have “Higher Explanatory Power”

76. Ms. Allen does not contest the event study used in the Nye Report. However, as part of her price impact analysis, she relies, in part, on an “alternative” event study.²⁵⁵ Ms. Allen’s alternative event study is similar to the event study in the Nye Report in two primary ways: (i) she uses virtually the same control periods (*i.e.*, the calendar year immediately preceding the impact date under study);²⁵⁶ and she uses the same market index (*i.e.*, the S&P 500).²⁵⁷

However, in order to control for changes in the industry, in the Nye Report, I used the S&P 500 Oil & Gas Exploration and Production Index, excluding Apache.²⁵⁸ Whereas, Ms. Allen used the S&P Oil & Gas Exploration & Production Select Industry Index, excluding Apache.²⁵⁹

77. Ms. Allen misleadingly asserts that, “[o]verall, the alternative event study has a higher explanatory power than Dr. Nye’s event study.”²⁶⁰ She claims that “on the majority of dates tested (alleged misrepresentations and alleged corrective disclosures during the Focus Period), the alternative event study has a higher adjusted R-squared than Dr. Nye’s event study.”^{261, 262}

²⁵⁵ According to Ms. Allen, her “conclusion of no price impact and no link between any of the alleged misrepresentations made during the alleged Class Period and Apache’s stock price during the Focus Period does not depend on which event study model is used.” (Allen Report, ¶34.)

²⁵⁶ See Nye Report, ¶73; See Allen Report, ¶33.

²⁵⁷ See Nye Report, ¶74; See Allen Report, ¶33.

²⁵⁸ See Nye Report, ¶75.

²⁵⁹ Allen Report, ¶33. According to S&P, “S&P Select Industry Indices are designed to measure the performance of narrow GICS® sub-industries. The index comprises stocks in the S&P Total Market Index that are classified in the GICS oil & gas exploration & production sub-industry.” (Source: <https://www.spglobal.com/spdji/en/indices/equity/sp-oil-gas-exploration-production-select-industry-index/#overview>.)

²⁶⁰ Allen Report, ¶33.

²⁶¹ Allen Report, footnote 45.

²⁶² The “R-squared (R^2)” statistic “[m]easures how well a regression equation fits the data,” and “varies between 0 (no fit) and 1 (perfect fit).” (See the Glossary of Terms to the Reference Guide on Statistics.) “[T]he adjusted R^2 ... has been suggested as a fit measure that

However, her assertions are misleading and incorrect. I compared the adjusted R-squared statistics for both regression models, and found that, on over half the days during the Class Period (59%), the event study model in the Nye Report has a higher adjusted R-squared statistic than Ms. Allen's alternative model. Thus, technically speaking, the regression model in the Nye Report has higher explanatory power, overall. Nonetheless, as shown in the following table, the adjusted R-squared statistics for both of our models are very similar across the Class Period, and specifically for dates of alleged misstatements and corrective disclosures in the Focus Period. Thus, Ms. Allen has no basis to cast doubt on the explanatory power of the regression model used in the Nye Report.

appropriately penalizes the loss of degrees of freedom that result from adding variables to the model,” and “has been found to be a preferable fit measure for assessing the fit of forecasting models.” (See Greene, William H., *Econometric Analysis*, Prentice Hall, 2012, 7th Ed., Ch. 5, p. 139.) Accordingly, adjusted R^2 is commonly used to assess the “explanatory power” of an event study to predict security prices, as opposed to the “statistical power” of an event study to accurately reject the null hypothesis, as discussed in §X above.

Period	Comparison of Model Adjusted R2		
		Nye Adj. R2	Allen Adj. R2
All Dates in CP	Average	0.659	0.643
	Median	0.667	0.654
All Dates in Focus Period	Average	0.645	0.655
	Median	0.667	0.667
Alleged Misstatements & Corrective Disclosures 2/23/2018 - 3/17/2020	Average	0.666	0.660
	Median	0.664	0.667

Alleged Misstatement / Disclosure	Date	Nye Adj. R2	Allen Adj. R2
Misstatement	2/23/2018	0.682	0.660
Misstatement	2/26/2018	0.691	0.671
Misstatement	3/26/2018	0.707	0.698
Misstatement	5/3/2018	0.671	0.686
Misstatement	5/30/2018	0.683	0.691
Misstatement	6/5/2018	0.683	0.687
Misstatement	8/2/2018	0.664	0.668
Misstatement	8/9/2018	0.645	0.648
Misstatement	9/21/2018	0.619	0.630
Misstatement	3/1/2019	0.665	0.647
Corrective Disclosure	4/23/2019	0.662	0.663
Corrective Disclosure	4/24/2019	0.662	0.664
Corrective Disclosure	4/25/2019	0.662	0.665
Corrective Disclosure	4/26/2019	0.662	0.665
Misstatement	5/2/2019	0.667	0.668
Misstatement	5/14/2019	0.664	0.675
Misstatement	8/1/2019	0.668	0.701
Corrective Disclosure	10/25/2019	0.667	0.717
Corrective Disclosure	3/16/2020	0.649	0.552
Corrective Disclosure	3/17/2020	0.649	0.553

Source: Nye Report Exhibit 11; NERA_019129

78. My work in this matter is ongoing. My opinions in this Report are subject to refinement or revision based on analysis of new information which may be provided to me, including the opinions of other experts, receipt of additional documents and data, and based on further analysis of the data and materials described herein. I understand that discovery is ongoing. Should additional relevant information be provided to me, my opinions may be supplemented at a later date.

Executed on August 11, 2023, at Redwood City, California.


Zachary Nye, Ph.D.



702 MARSHALL STREET, SUITE 200
REDWOOD CITY, CA 94063
650.298.0200
WWW.SCGINC.COM

Zachary R. Nye

Email: zach@scginc.com

Education

Ph.D. – University of California, Irvine

Finance

2009

Irvine, California

- Dissertation: Macro-Augmented Volatility Forecasting.
- Research Interests: Market efficiency of underlying and derivative securities, volatility forecasting, risk management, financial econometrics, valuation and corporate finance.
- Teaching Experience: Corporate Finance, Investments, and Risk Management.

M.Sc. – London Business School

Finance

2004

London, England

- Earned distinction for Masters Thesis on the informational efficiency of credit-linked notes.

A.B. – Princeton University

Economics

2001

Princeton, New Jersey

Employment History

Vice President

Stanford Consulting Group, Inc.

Summer 2015 – present
Redwood City, California

The Stanford Consulting Group, Inc. provides economic research and expert testimony for business litigation, as well as regulatory and legislative proceedings.

Responsibilities include:

- quantifying economic damages (*e.g.*, present value of expected future earnings, price inflation, lost profits, unjust enrichment, reasonable royalties);
- enterprise, project, equity, debt, derivative-security and intellectual-property valuation;
- assessing the informational efficiency of financial securities;
- analyzing fairness opinions related to corporate mergers and acquisitions;
- econometric modeling and analysis;
- marginal cost analysis;
- preparing expert reports and declarations;
- providing deposition and trial testimony; and
- supporting counsel in preparation for cross examination of opposing experts.

Senior Consultant

Stanford Consulting Group, Inc.

Summer 2009 – Summer 2015
Redwood City, California

Associate
Stanford Consulting Group, Inc.

Summer 2004 – Summer 2005
Redwood City, California

Mortgage Consultant
Woolwich PLC

Fall 2002 – Summer 2003
Oxford, UK

Trading Desk Specialist
Merrill Lynch, Defined Asset Funds

Fall 2001 – Summer 2002
Plainsboro, New Jersey

Academic Research

Nye, Zachary and Mark Washburn, 2013, “Macro-Augmented Volatility Forecasting,” *Western Decision Sciences Institute Proceedings*. Paper presented at the WDSI Annual Meeting, Long Beach, California, March 27, 2013. Winner of the 2013 Best Theoretical/Empirical Research Paper Awards.

Nye, Zachary and Philippe Jorion, 2009, “Macro-Augmented Volatility Forecasting,” Working Paper, University of California at Irvine.

Nye, Zachary and Timothy C. Johnson, 2005, “Market Efficiency's Hidden Teeth: An Unambiguous Test for Derivative Securities,” Working Paper, London Business School.

Testimony

Miriam Edwards, et al. v. McDermott International, Inc., et al., United States District Court, Southern District of Texas, Houston Division, Case No. 4:18-cv-04330
Deposition April 26, 2023

John V. Ferris, et al. v. Wynn Resorts Limited, et al., United States District Court, District of Nevada, Case No. 2:18-cv-00479-GMN-DJA
Deposition August 26, 2022
Deposition January 31, 2023

In re Jernigan Capital, Inc. Securities Litigation, United States District Court, Southern District of New York, Case No. 1:20-cv-09575-JLR
Deposition January 27, 2023

Halman Aldubi Provident and Pension Funds Ltd., et al. v. Teva Pharmaceuticals Industries Limited, et al., United States District Court, Eastern District of Pennsylvania, Case No. 2:20-cv-04660-KSM
Deposition November 4, 2022

Ali Karimi, et al. v. Deutsche Bank AG, et al., United States District Court, Southern District of New York, Case No. 1:22-cv-02854-JSR
Deposition August 12, 2022

Teresa Doscocz, et al. v. ALS Lien Services, et al., Superior Court of California, County of Contra Costa, Case No. C17-01486
Deposition April 23, 2018
Deposition March 8, 2022
Deposition April 14, 2022
Trial April 29, 2022

Paul Hayden, et al. v. Portola Pharmaceuticals, Inc., et al., United States District Court, Northern District of California, Case No. 3:20-cv-00367-VC
Deposition March 30, 2022

United States of America ex rel. Lori Morsell, et al. v. Symantec Corporation, United States District Court for the District of Columbia, Civil Action No. 12-cv-0800 (RC)

Deposition	March 13, 2019
Trial	March 22, 2022

United States of America ex rel. Tiffany Montrieff, et al. v. Peripheral Vascular Associates, P.A., United States District Court for the Western District of Texas, San Antonio Division, Civil Action No. SA-17-CV-00317-XR

Deposition	July 31, 2020
Trial	February 14, 2022

In re Advance Auto Parts, Inc. Securities Litigation, United States District Court, District of Delaware, Case No. 1:18-CV-00212-RGA

Deposition	July 14, 2020
Deposition	September 30, 2021

In re Allergan PLC Securities Litigation, United States District Court, Southern District of New York, Civil Action No. 18-CV-12089-CM

Deposition	May 19, 2020
Deposition	September 27, 2021

Gabby Klein, et al. v. Altria Group, Inc., et al., United States District Court, Eastern District of Virginia, Richmond Division, Case No. 3:20-cv-00075-DJN

Deposition	August 31, 2021
------------	-----------------

In re Tahoe Resources, Inc. Securities Litigation, United States District Court, District of Nevada, Case No. 2:17-cv-01868-RFB-NJK

Deposition	August 4, 2021
------------	----------------

Hawaii Structural Ironworkers Pension Trust Fund, et al. v. AMC Entertainment Holdings, Inc., et al., United States District Court, Southern District of New York, Case 1:18-cv-00299-AJN-SLC

Deposition	July 9, 2020
Deposition	July 28, 2021

In re Mylan N.V. Securities Litigation, United States District Court, Southern District of New York, Case No. 1:16-CV-07926 (JPO)

Deposition	November 22, 2019
Deposition	July 20, 2021

Oregon Laborers Employers Pension Trust Fund, et al. v. Maxar Technologies Inc., et al., United States District Court, District of Colorado, Case No. 1:19-cv-00124-WJM-SKC

Deposition	May 28, 2021
------------	--------------

Roei Azar, et al. v. Yelp, Inc., et al., United States District Court, Northern District of California, Case No. 3:18-cv-00400-EMC

Deposition	March 2, 2021
------------	---------------

Roofers' Pension Fund, et al. v. Joseph C. Papa, et al., United States District Court, District of New Jersey, Civil Action No. 2:16-cv-02805-MCA-LDW

Deposition	April 2, 2019
Deposition	January 14, 2021

Utah Retirement Systems, et al. v. Healthcare Services Group, Inc., et al., United States District Court, Eastern District of Pennsylvania, Case No. 2:19-cv-01227-ER

Deposition	December 10, 2020
------------	-------------------

Matt Karinski, et al. v. Stamps.com, Inc., et al., United States District Court, Central District of California, Case No. 2:19-cv-01828-MWF-SK

Deposition August 14, 2020

Alexandre Pelletier, et al. v. Endo International PLC, et al., United States District Court, Eastern District of New Pennsylvania, Civil Action No. 2:17-cv-05114-MMB

Deposition July 27, 2020

In re Zillow Group, Inc. Securities Litigation, United States District Court, Western District of Washington at Seattle, Case No. 2:17-cv-01387-JCC

Deposition March 10, 2020

Joseph Prause, et al. v. TechnipFMC plc, et al., United States District Court, Southern District of Texas, Houston Division, Case No. 4:17-cv-02368

Deposition February 5, 2020

Deposition March 9, 2020

In re Quorum Health Securities Litigation, United States District Court, Middle District of Tennessee, Case No. 3:16-cv-02475

Deposition August 17, 2018

Deposition January 14, 2020

In re Snap Inc. Securities Litigation, United States District Court, Central District of California, Western Division, Case No. 2:17-cv-03679-SVW-AGR

Deposition December 13, 2019

Jet Capital Master Fund, L.P., et al. v. American Realty Capital Properties, Inc., et al., United States District Court, Southern District of New York, Case No. 1:15-cv-00307-AKH

Deposition July 26, 2019

City of Pontiac General Employees' Retirement System, et al. v. Dell Inc., et al., United States District Court, Western District of Texas, Austin Division, Case No. 1:15-cv-00374-LY

Deposition April 19, 2017

Deposition November 6, 2018

Pirnik v. Fiat Chrysler Automobiles N.V., et al., United States District Court, Southern District of New York, Case No. 1:15-CV-07199-JMF

Deposition February 2, 2018

Deposition September 13, 2018

Bradley Cooper, et al. v. Thoratec Corporation, et al., United States District Court, Northern District of California, Oakland Division, Case No. 4:14-cv-00360-CW

Deposition March 6, 2018

L-3 Communications Corporation, et al. v. Serco, Inc., United States District Court for the Eastern District of Virginia, Case No. 1:15-cv-701-GBL-JFA

Deposition October 22, 2015

Deposition October 18, 2017

In re Juno Therapeutics, Inc., United States District Court of Western District of Washington at Seattle, Case No. C16-1069RSM

Deposition October 4, 2017

Brad Mauss, et al. v. NuVasive, Inc., et al., United States District Court, Southern District of California, Case No.: 13-cv-02005-JM

Deposition December 20, 2016

Deposition August 28, 2017

In re Akorn, Inc. Securities Litigation, United States District Court, Northern District of Illinois, Eastern Division,
Case No. 15-CV-01944

Deposition June 21, 2017

In re Ocwen Financial Corporation Securities Litigation, United States District Court, Southern District of Florida,
Case 14-81057-CIV-WPD

Deposition September 23, 2016

Deposition March 28, 2017

Stephen Calfo, et al. v. John P. Messina, Sr., et al., United States District Court, Southern District of New York,
Civil Action No. 15 Civ. 04010 (LGS)

Deposition January 5, 2017

In re EZCORP, Inc. Securities Litigation, United States District Court, Southern District of New York, Case No. 14-
cv-6834 (ALC)

Deposition October 14, 2016

Arthur Menaldi, et al. v. Och-Ziff Capital Management Group LLC, et al., United States District Court, Southern
District of New York, No. 14-CV-03251-JPO

Deposition October 3, 2016

Keith Thomas, et al. v. MagnaChip Semiconductor Corp., et al., United States District Court, Northern District of
California, Case No. 3:14-cv-01160-JST

Deposition September 16, 2016

In re Rocket Fuel, Inc. Securities Litigation, United States District Court, Northern District of California, Oakland
Division, Case No. 4:14-cv-03998-PJH

Deposition September 14, 2016

Barbara Strougo, Individually and on Behalf of All Others Similarly Situated v. Barclays PLC, et al., United States
District Court, Southern District of New York, Case No. 14-cv-5797 (SAS)

Deposition August 11, 2015

Evidentiary Hearing November 5, 2015

Deposition June 16, 2016

In re Merck & Co., Inc. Securities, Derivative & “ERISA” Litigation, United States District Court, District of New
Jersey, Case Numbers: 05-cv-5060; 07-cv-4021; 07-cv-4022; 07-cv-4023; 07-cv-4024; 07-cv-4546; 11-cv-6259; and
15-cv-518

Deposition December 6, 2013

Deposition October 1, 2015

Richard Thorpe and Darrel Weisheit, Individually and on Behalf of All Others Similarly Situated v. Walter
Investment Management Corp., et al., United States District Court, Southern District of Florida,
Case No. 1:14-cv-20880-UU

Deposition September 16, 2015

City of Austin Police Retirement System, *Individually and on Behalf of All Others Similarly Situated* v. Kinross
Gold Corporation, et al., United States District Court, Southern District of New York,
Civil Action No. 1:12-cv-01203-VEC-KNF

Deposition November 19, 2014

In re El Paso Partners, L.P. Derivative Litigation, Court of Chancery of the State of Delaware, C.A. No. 7141-CS

Deposition September 24, 2013

Trial November 12 and 13, 2014

L-3 Communications Corporation, et al. v. Jaxon Engineering & Maintenance, Inc., et al., United States District Court for the District of Colorado, Civil Action No. 10-cv-02868-MSK-KMT

Deposition August 7, 2014

Axa Corporate Solutions Assurance, et al. v. Honeywell International, Inc., et al., Superior Court of the State of Arizona in and for the County of Maricopa, No. CV2011-019334

Deposition February 24, 2014

In re Heckmann Corporation Securities Litigation, United States District Court for the District of Delaware, Case No. 1:10-cv-00378-LPS-MPT

Deposition November 9, 2012

Apache Corporation

Analyst Price Targets and Rating Actions Surrounding Event Date

Source: Bloomberg

9/7/2016	Apache Announces Alpine High				
Firm	Price Target as of 9/6/2016	Price Target as of 9/12/2016	% Change in Price Target	Pre-Event Rating Action	Post-Event Rating Action
Alembic Global Advisors	\$75.00	\$75.00	0.00%	overweight	overweight
Argus Research Company				hold	hold
Atlantic Equities	\$41.00	\$70.00	70.73%	neutral	overweight
Barclays	\$50.00	\$50.00	0.00%	equalweight	equalweight
Bernstein	\$61.00	\$69.00	13.11%	outperform	outperform
BMO Capital Markets	\$60.00	\$60.00	0.00%	market perform	market perform
Capital One Securities	\$55.00	\$60.00	9.09%	equalweight	equalweight
Citi	\$53.00	\$58.00	9.43%	neutral	neutral
CLSA	\$57.00	\$57.00	0.00%	underperform	underperform
Cowen	\$56.00	\$56.00	0.00%	market perform	market perform
Credit Suisse	\$63.00	\$67.00	6.35%	neutral	neutral
Deutsche Bank	\$53.00	\$57.00	7.55%	hold	hold
Edward Jones				buy	buy
Evercore ISI	\$60.00	\$62.00	3.33%	hold	hold
Goldman Sachs	\$62.00	\$63.00	1.61%	neutral/attractive	neutral/attractive
IBERIA Capital Partners	\$60.00	\$60.00	0.00%	sector perform	sector perform
ISS-EVA				overweight	overweight
Jefferies	\$42.00	\$47.00	11.90%	underperform	underperform
Johnson Rice				accumulate	accumulate
JP Morgan	\$55.00	\$55.00	0.00%	neutral	neutral
KLR Group	\$71.00	\$71.00	0.00%	buy	buy
Macquarie	\$52.00	\$54.00	3.85%	neutral	neutral
Morgan Stanley	\$61.00	\$63.00	3.28%	Equalwt/Attractive	Equalwt/Attractive
Morningstar				hold	sell
Nomura	\$42.00	\$42.00	0.00%	reduce	reduce
Peters & Co.	\$50.00	\$50.00	0.00%	sector underperform	sector underperform
Piper Sandler & Co	\$68.00	\$68.00	0.00%	overweight	overweight
Raymond James	\$70.00	\$70.00	0.00%	outperform	outperform
RBC Capital	\$60.00	\$62.00	3.33%	sector perform	sector perform
Scotiabank	\$70.00	\$70.00	0.00%	sector outperform	sector outperform
Seaport Global	\$53.00	\$53.00	0.00%	neutral	neutral
Societe Generale	\$65.00	\$65.00	0.00%	buy	buy
TPH&Co.	\$52.00	\$52.00	0.00%	hold	hold
Wells Fargo				outperform	outperform
Wolfe Research	\$44.00			underperform	peerperform
Total	\$57.28	\$60.21	5.13%		

Exhibit 4

**UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF TEXAS
HOUSTON DIVISION**

IN RE APACHE CORP. SECURITIES LITIGATION

Case No. 4:21-cv-00575

SURREPLY REPORT

OF

LUCY P. ALLEN

September 8, 2023

TABLE OF CONTENTS

I.	Scope of Assignment	1
II.	Qualifications and Remuneration	1
III.	Materials Considered	1
IV.	The Nye Reply Report Fails to Show <i>Any</i> Evidence of Price Impact During the Focus Period, Ignores Academic and Market Evidence Analyzed in the Allen Report, and Instead Offers Unscientific Arguments That Appear Designed to Create Confusion and Obfuscation	2
A.	The Nye Reply Report completely ignores the Allen Report’s analyses which demonstrated that the market’s view of Alpine High’s oil and wet gas reserves did not change during the Focus Period and Nye shows nothing to the contrary	2
B.	The Nye Reply Report incorrectly claims that the Allen Report ignored certain of Plaintiffs’ allegations when the truth is that Nye ignores the Allen Report’s analyses regarding those allegations	4
1.	Contrary to the Nye Reply Report’s claim that the allegations regarding Alpine High being economic at low commodity prices were ignored in the Allen Report, Nye completely ignores the Allen Report’s analyses demonstrating that the market was aware that deteriorating commodity prices would drive expectations of Alpine High downward before and during the Focus Period, and Nye shows nothing to the contrary	5
2.	The Nye Reply Report completely ignores the Allen Report’s analyses that showed that there is no price impact from the alleged misrepresentations made before or during the Focus Period	8
C.	For the April 23, 2019 alleged corrective disclosure, the Nye Reply Report fails to show <i>any</i> evidence of price impact from the alleged misrepresentations - the Nye Reply Report’s claims are unscientific, contradict his own event study method and his finding of market efficiency, and call into question how his proposed common damages methodology could even work	11
1.	Nye’s claims regarding statistical significance are misleading and designed to create obfuscation – his claim that a non-statistically significant price reaction is meaningless is incorrect, contradicts his own methodology, and calls into question how his proposed common damages methodology could even work	11
2.	Nye’s use of a cumulative four-day event window when no individual day is statistically significant is cherry-picked, unscientific, non-standard, and contradicts his own event study method	17
3.	If Nye had applied his cumulative four-day approach to his market efficiency analysis, the majority of the “event” days Nye found to be significant would no longer be significant, contradicting his own finding of market efficiency	21

4. The Nye Reply Report’s claims regarding analyst commentary following the April 23, 2019 alleged corrective disclosure are misleading and incorrect – analysts consistently characterized the deferral as “expected” and “prudent” given the deteriorating commodity prices.....24
- D. For the October 25, 2019 alleged corrective disclosure, the Nye Reply Report fails to show *any* evidence of price impact from the alleged misrepresentations - failing to identify any new news about Alpine High, ignoring that the market commentary is essentially unanimous in directly attributing the stock price decline to Suriname speculation while not a single analyst attributes the stock price decline to new news about Alpine High27
- E. For the March 16, 2020 alleged corrective disclosure, the Nye Reply Report fails to show *any* evidence of price impact from the alleged misrepresentations - the Nye Reply Report fails to identify any new information in the allegedly corrective *Seeking Alpha* article, creates confusion by now claiming an entirely different alleged corrective disclosure (a Susquehanna report) that does not even mention Alpine High, and although unnecessary to do an event study if there is no corrective event, incorrectly adjusts the event study statistics for the record-high volatility on this date.....31
 1. The Nye Reply Report fails to identify any new information in the allegedly corrective *Seeking Alpha* article and creates confusion and obfuscation by now claiming an entirely different alleged corrective disclosure in a Susquehanna analyst report that does *not* even mention Alpine High.....32
 2. Although unnecessary to do an event study, the Nye Reply Report *incorrectly* adjusts for the record-high market volatility on this date; if Dr. Nye had properly followed the methodology in the paper he relies upon, he would find that there is *no* statistically significant reaction to the March 16, 2020 alleged corrective disclosure37
- F. The Nye Reply Report’s claims that the Allen Report’s big picture analysis is irrelevant are disingenuous and misleading - contrary to Plaintiffs’ allegation that “when the truth regarding Defendant’s fraud emerged,” Apache’s stock price was “decimated” and dropped by “93% from its high,” Apache’s stock price moved in-line with the E&P industry during the Focus Period.....41

I. SCOPE OF ASSIGNMENT

1. I have been asked by counsel for Defendants to review and comment on the Reply Report of Zachary Nye, Ph.D., dated August 11, 2023 (the “Nye Reply Report”).

2. I have previously submitted an expert report in this matter, dated June 16, 2023 (“Allen Report”).

II. QUALIFICATIONS AND REMUNERATION

3. My qualifications and remuneration were set forth in the Allen Report.

III. MATERIALS CONSIDERED

4. In preparing this report, I considered the materials previously considered in the Allen Report. In addition, I considered the following additional materials:

- a) Nye Reply Report, including materials considered and turnover; prior reports and depositions of Dr. Nye;
- b) Deposition of Lucy P. Allen, dated July 28, 2023 (“Allen Deposition”);
- c) Reply Memorandum of Law in Support of Lead Plaintiffs’ Motion for Class Certification and Appointment of Class Representative and Class Counsel (“Plaintiffs’ Reply Memo”), filed August 11, 2023;
- d) Intraday data for Apache from Bloomberg, L.P.;
- e) Analyst estimate data from I/B/E/S, obtained through FactSet Research Systems, Inc.;
- f) Additional analyst reports on Apache prior to the Focus Period from Refinitiv Eikon; and
- g) Court decisions in other cases.

IV. THE NYE REPLY REPORT FAILS TO SHOW ANY EVIDENCE OF PRICE IMPACT DURING THE FOCUS PERIOD, IGNORES ACADEMIC AND MARKET EVIDENCE ANALYZED IN THE ALLEN REPORT, AND INSTEAD OFFERS UNSCIENTIFIC ARGUMENTS THAT APPEAR DESIGNED TO CREATE CONFUSION AND OBFUSCATION

A. The Nye Reply Report completely ignores the Allen Report’s analyses which demonstrated that the market’s view of Alpine High’s oil and wet gas reserves did not change during the Focus Period and Nye shows nothing to the contrary

5. Plaintiffs allege in the “Introduction” of their Complaint that Apache concealed that “the Alpine High area was too heavy on unprofitable ‘dry’ gas and too light on valuable oil and ‘wet’ gas” and claim that the “truth” regarding these alleged misrepresentations was disclosed through a series of partial alleged corrective disclosures.¹ The Allen Report showed that during the Focus Period no new information about Alpine High’s oil and wet gas reserves or its mix was disclosed and that there was no change in the market’s expectations about Alpine High’s reserves or the mix of oil and wet gas vs. dry gas. Dr. Nye has no response to these analyses, completely ignores them, and shows *nothing* to the contrary.

6. Through a systematic review of analyst reports, the Allen Report demonstrated that no analysts changed their understanding about Alpine High’s quantity of wet gas and oil reserves or its oil and wet gas vs. dry gas reserve mix during the Focus Period.² For example, as shown in the Allen Report, during the Focus Period analysts at Bank of America consistently described Alpine High as a “gas play” (*i.e.*, there was mainly gas rather than oil) and did not indicate they learned anything new about the quantity or mix of Alpine High’s reserves, JP Morgan analysts repeatedly commented on the “gassier mix” of Alpine High, and Morgan Stanley and MUFG Bank analysts repeatedly characterized Alpine High as “NGL[Natural Gas Liquids]-rich.” UBS analysts described Alpine High as “gas-weighted” early in the Focus Period in March 2018, consistently stated that Alpine High “predominantly produced NGL and natural gas” more than a year later in August 2019 and continued to estimate that Alpine High had more

¹ Complaint, ¶¶4, 303, 319.

² Allen Report, ¶¶100-102.

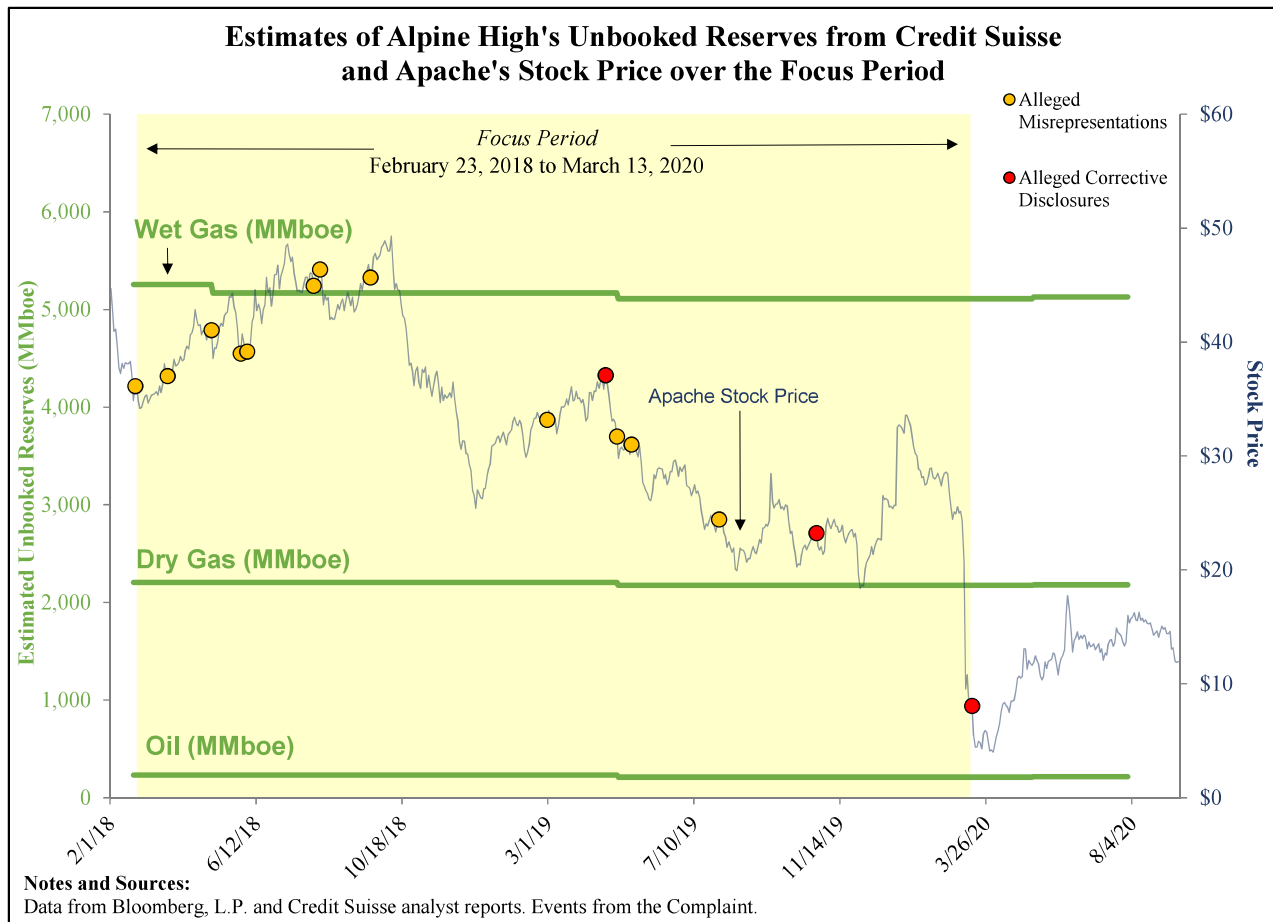
than 3,500 wet gas drilling locations in December 2019, close to the end of the Focus Period.³ Tellingly, Dr. Nye fails to point to even one analyst that changed its view on Alpine High's quantity of oil and wet gas reserves or its oil and wet gas vs. dry gas reserve mix during the Focus Period – because no analyst's views changed during that time period.

7. The Allen Report also demonstrated that analysts' estimates of the quantity of oil and wet gas reserves at Alpine High and its mix did not change during the Focus Period. For example, the Allen Report showed that analysts at Credit Suisse essentially did not change their estimates of Alpine High's "unbooked reserves" of oil, wet gas, and dry gas or its mix after any of the alleged misrepresentations or alleged corrective disclosures during the Focus Period.⁴ Further, after the end of the alleged Class Period and Focus Period, Credit Suisse continued to maintain essentially the same reserve estimates and mix for Alpine High. Thus, as shown in the chart below, during the Focus Period Credit Suisse analysts essentially did not change their estimates of the quantity and mix of Alpine High reserves after any of the alleged misrepresentations or alleged corrective disclosures.⁵

³ Allen Report, ¶¶100-102.

⁴ "Unbooked reserves" reflect the quantity of reserves in a play that are possible and probable, but not proven. See Allen Report, footnote 112.

⁵ Allen Report, ¶¶98-99.



8. In sum, as demonstrated in the Allen Report by a systematic review of analysts' estimates and descriptions of the quantity and mix of Alpine High's reserves, there was no change in the market's expectations about Alpine High's reserves or the mix of oil and wet gas vs. dry gas. Instead, throughout the Focus Period, analysts maintained their view that Alpine High was a gas-weighted, NGL-rich play. Dr. Nye has no response to these analyses, completely ignores them in the Nye Reply Report, and shows *nothing* to the contrary.

B. The Nye Reply Report incorrectly claims that the Allen Report ignored certain of Plaintiffs' allegations when the truth is that Nye ignores the Allen Report's analyses regarding those allegations

9. The Nye Reply Report incorrectly claims that the Allen Report ignored certain of Plaintiffs' allegations, when in reality, Dr. Nye ignores the Allen Report's analyses regarding those allegations. Dr. Nye claims the Allen Report ignored the alleged misrepresentations before the Focus Period and in particular the alleged misrepresentations about Alpine High being economic at low commodity prices. Dr. Nye is incorrect. The Allen Report did address these

alleged misrepresentations and showed that there is no price impact during the Focus Period from these alleged misrepresentations.⁶

1. **Contrary to the Nye Reply Report's claim that the allegations regarding Alpine High being economic at low commodity prices were ignored in the Allen Report, Nye completely ignores the Allen Report's analyses demonstrating that the market was aware that deteriorating commodity prices would drive expectations of Alpine High downward before and during the Focus Period, and Nye shows nothing to the contrary**

10. Dr. Nye claims that the Allen Report ignored Plaintiffs' allegations regarding Alpine High being economic at low prices.⁷ However, Dr. Nye ignores that the Allen Report explicitly analyzed the alleged misrepresentations pertaining to the economics of Alpine High at low commodity prices and found that the market was aware before the Focus Period began that deteriorating commodity prices would drive expectations about Alpine High downward.⁸

11. Dr. Nye cites to an alleged misrepresentation on February 23, 2017 (one year before the start of the Focus Period) in Apache's conference call discussing financial results for FY16 where Plaintiffs allege Defendants misstated that "even in the lower commodity price environment, this play [Alpine High] is going to be very economic."⁹ Dr. Nye mistakenly claims that the Allen Report failed to analyze price impact from this alleged misrepresentation. As explained in the Allen Report, not one analyst mentioned or incorporated this alleged misstatement into their valuation of Apache.¹⁰ Furthermore, as detailed in the Allen Report, following this alleged misstatement, analysts explicitly stated that weak commodity prices would challenge the economics of Alpine High.¹¹

12. Dr. Nye also cites to an alleged misrepresentation on February 22, 2018 in Apache's conference call discussing financial results for FY17 where Plaintiffs allege

⁶ See for example, Allen Report, ¶¶35-126.

⁷ Nye Reply Report, ¶16.

⁸ Allen Report, ¶¶43-44.

⁹ Nye Reply Report, ¶17 and Complaint, ¶224.

¹⁰ Allen Report, ¶43.

¹¹ For example, in a report issued on February 23, 2017, analysts at Bank of America stated that a "key risk" to Apache's Alpine-High-gas-driven growth would be worsened Waha Hub prices due to a surge in local production. See also, Bank of America analyst report, dated February 24, 2017. See also, Allen Report, ¶43.

Defendants misstated that “Alpine High ‘is going to really hum below \$2 [prices] on the gas side,’” and “‘we’ve run many cases on the downside. We would not be making this type of investment on the midstream or the upstream side if we thought there was a sensitivity that was close to anything that would come into making it not work under very, very low gas and NGL and oil prices.’”¹² Dr. Nye similarly mistakenly claims that the Allen Report failed to analyze price impact from this alleged misrepresentation. As explained in the Allen Report, not one analyst mentioned or incorporated this alleged misstatement into their valuation of Apache.¹³ On the contrary, as detailed in the Allen Report, following this alleged misstatement (and still prior to the start of the Focus Period), analysts explicitly stated that weak commodity prices would challenge the economics of Alpine High.¹⁴ Analysts continued to express this sentiment throughout the Focus Period.¹⁵

13. Thus, the Allen Report clearly addressed these alleged misrepresentations showing not only that no analyst repeated the statement when made but more importantly that analysts, after the alleged misrepresentations, said the opposite of what Plaintiffs are alleging – *i.e.*, analysts explicitly said that Alpine High would be negatively affected if prices dropped.¹⁶ The Allen Report not only explicitly addressed these alleged misrepresentations but also demonstrated that they could have no price impact during the Focus Period because analysts

¹² Nye Reply Report, ¶17 and Complaint, ¶256.

¹³ Allen Report, ¶43.

¹⁴ For example, in a report issued on February 22, 2018, Bank of America analysts stated that there was “no visibility” of the long-term commodity price outlook, which would challenge Apache’s investment in Alpine High. The analysts further stated having “conviction” about the value of Apache’s gas-driven growth was “too difficult” and reiterated their “underperform” rating of Apache’s stock. Bank of America analyst report, dated February 22, 2018. As another example, a Credit Suisse analyst report on February 22, 2018 stated that Alpine High “naysayers” were unlikely to change their view about the play, as investor concerns about weakening Waha Hub prices continued to grow. Credit Suisse analyst report, dated February 22, 2018. See also, Allen Report, ¶43.

¹⁵ See for example, Stephens analyst report, dated April 23, 2019, MUFG Bank analyst report, dated May 2, 2019, and Barclays analyst report, dated October 21, 2019.

¹⁶ Note Dr. Nye quotes other alleged misstatements in ¶17 of his Reply Report that either no analysts repeated or are not regarding Alpine High being economic at low prices. In particular, not one analyst repeated the September 7, 2016 alleged misstatement (“even at \$40/barrel oil and \$2.50 gas, ‘the returns are still significantly high’”), not one analyst repeated the September 28, 2016 alleged misstatement and it only discusses oil prices, not gas prices (“contains some of the cheapest oil and gas to produce not just in the U.S., but in the world, economic to drill at prices as low as \$40 a barrel”), and the other alleged misstatements are not about Alpine High being economic at low commodity prices.

before the Focus Period already believed that Alpine High would be negatively affected if prices fell.

14. Moreover, Dr. Nye’s claim that the Allen Report “fails to consider whether the alleged corrective events caused investors to change their views regarding the economics of the Alpine High play, including with respect to oil, wet gas/NGLs, and dry gas, and particularly in a low-price environment for those commodities,” is incorrect as the Allen Report showed that the market was already aware that weak commodity prices would challenge Alpine High’s economics.¹⁷

15. In addition, Dr. Nye fails to recognize that commodity prices did in fact go substantially *below* the \$2-\$2.50 levels mentioned by the Company in the alleged misrepresentations.¹⁸ As shown in the Allen Report and in the chart below, Waha Hub natural gas spot prices went below \$2 starting in March 2018, right after the beginning of the Focus Period, and stayed consistently below \$2 from early 2019, before the first Focus Period alleged corrective disclosure (April 23, 2019), until after the end of the alleged Class Period. (In the chart below, gas prices above \$2 are shown in blue and prices below \$2 are shown in pink.) Prices even went *negative* in late March 2019, right before the first Focus Period alleged corrective disclosure, and remained close to zero for several months.¹⁹ Contemporaneous market commentary explained that this situation of negative gas prices meant “[c]ompanies increasingly [were] having to pay buyers in the Permian Basin to take their natural gas.”²⁰ At negative or close to zero gas prices, Alpine High would be uneconomic and the market was aware of this since before the beginning of the Focus Period and during it. For example, analysts at Barclays commented that “current commodity prices” were making Alpine High “uneconomic,” analysts at MUFG Bank stated that Waha prices would “drive [Apache’s] decision making” at Alpine

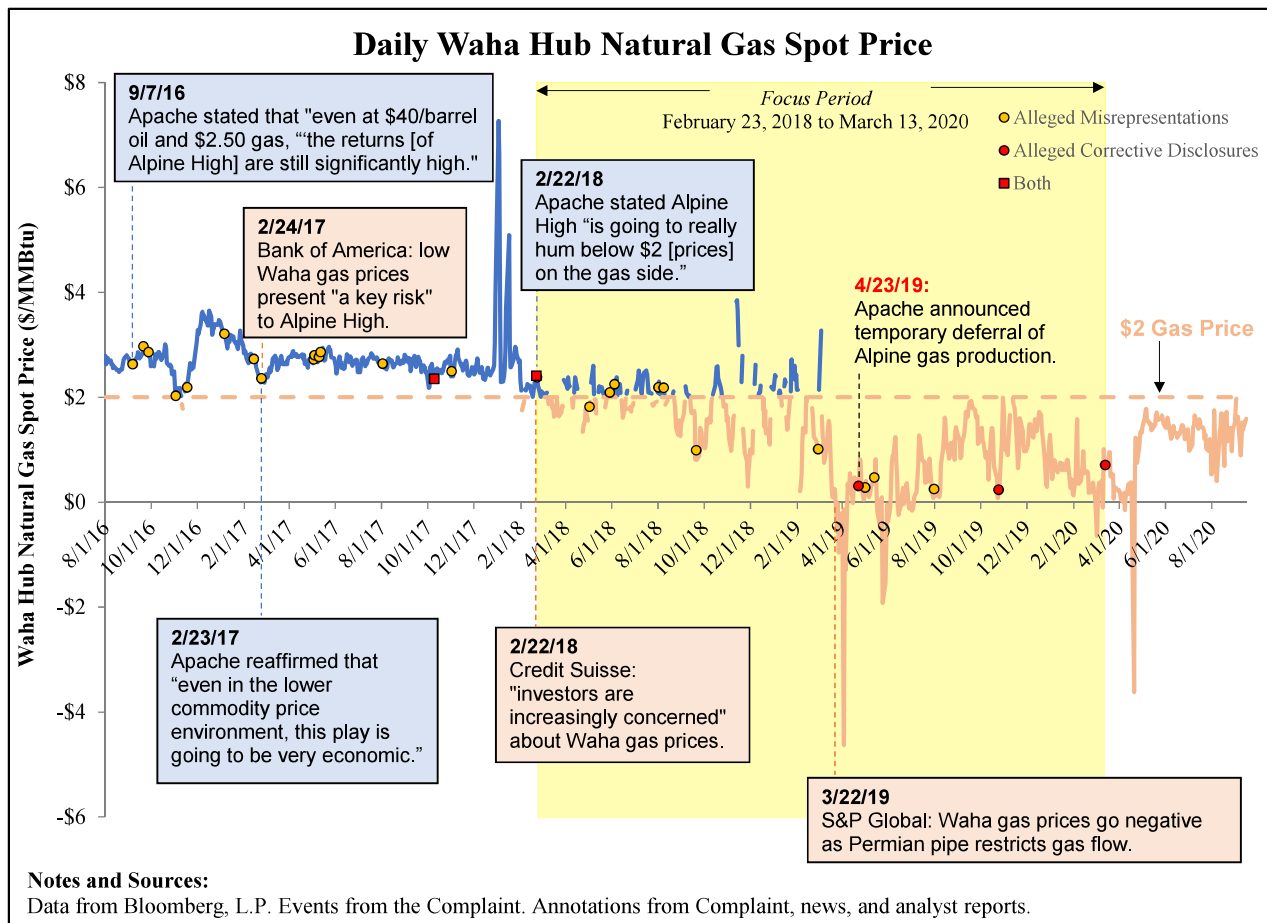
¹⁷ Nye Reply Report, ¶18 and Allen Report, ¶43.

¹⁸ Nye Reply Report, ¶17.

¹⁹ See for example, Allen Report, ¶¶55, 117.

²⁰ “Free Permian Gas More Common As Pipeline Bottlenecks Worsen,” *Dow Jones Newswires*, March 25, 2019. See also, “Waha Hub gas prices hit negative territory as Permian pipe restricts flow,” *S&P Global Market Intelligence*, March 22, 2019 and “Natural Gas Is Stuck in a Vicious Cycle,” *Wall Street Journal*, July 30, 2019 (“Producers in West Texas, drilling primarily for oil, are getting natural gas as a byproduct in their drilling process. The resource is plentiful and cheaper than free—bringing it to market costs more than the market price. This spring, the price of natural gas at a trading hub near Midland, Texas, dropped to as low as negative \$9 per million British thermal units.”).

High, analysts at Bank of America stated that weak gas prices made it “difficult to have conviction on value,” and analysts at Stephens commented that “depressed Waha pricing [was] hampering Alpine cash generative capabilities.”²¹



2. The Nye Reply Report completely ignores the Allen Report’s analyses that showed that there is no price impact from the alleged misrepresentations made before or during the Focus Period

16. The Nye Reply Report claims that the Allen Report did not “offer any opinion pertaining to the alleged misrepresentations or corrective disclosures” issued prior to the Focus Period and does not address “whether any of the alleged corrective disclosures made during the Pre-Focus Period fully dissipated all of the positive price impact created by the Pre-Focus Period

²¹ Barclays analyst report, dated October 21, 2019, MUFG analyst report, dated May 2, 2019, Bank of America analyst report, dated February 22, 2018, and Stephens analyst report, April 23, 2019.

alleged misstatements.”²² However, Dr. Nye completely ignores the Allen Report’s analyses that directly address these issues.

17. Dr. Nye incorrectly claims that the Allen Report offered no opinion pertaining to the alleged misrepresentations preceding the Focus Period. Dr. Nye flatly ignores that the Allen Report showed that there was no link between any of the alleged misrepresentations during the alleged Class Period (including those preceding the Focus Period) and the stock price during the Focus Period.²³ The Allen Report showed that the alleged inflation (if any) did not come out of Apache’s stock price during the Focus Period, including for example through a detailed analysis of each of the alleged corrective disclosures during the Focus Period that showed no statistically significant decline from the alleged misrepresentations.²⁴

18. Dr. Nye’s claims regarding the amount of alleged inflation that may have come out or “dissipated” before the Focus Period are irrelevant. Dr. Nye claims that the alleged misrepresentations during the Focus Period “served to maintain” and not create, the alleged inflation in Apache’s stock price.²⁵ Since the Allen Report showed that this alleged inflation (if any) did not come out of Apache’s stock price during the Focus Period, including on any of the alleged corrective disclosures, there is no link between any of the alleged misrepresentations during the alleged Class Period and Apache’s stock price movement during the Focus Period. The Allen Report demonstrated repeatedly with numerous analyses that the alleged inflation (if any) did not come out of Apache’s stock price during the Focus Period, including through a detailed analysis of each of the alleged corrective disclosures during the Focus Period that showed that there was no statistically significant decline from the alleged misrepresentations, as well as an analysis that showed that the market did not change its view about Alpine High’s oil and wet gas reserves, Apache’s stock moved in-line with the E&P industry, and the downward changes in expectations about Alpine High were driven by deteriorating commodity prices.²⁶

²² Nye Reply Report, ¶¶7, 9.

²³ See for example, Allen Report, ¶¶35-126. See also, Allen Deposition, 78:8-20.

²⁴ See for example, Allen Report, ¶¶35-126.

²⁵ Nye Reply Report, ¶10 and Plaintiffs’ Reply Memo, pp. 9-11.

²⁶ Allen Report, ¶¶35-126.

19. Simple logic dictates that in this situation determining whether any alleged inflation came out before the Focus Period is irrelevant. Since the alleged inflation (if any) did not come out of Apache's stock price during the Focus Period, then either i) the pre-Focus Period alleged misrepresentations had no impact at all, ii) the alleged inflation from the pre-Focus Period alleged misrepresentations came out of Apache's stock price before the Focus Period, or iii) the alleged inflation was still in the stock after the alleged Class Period and is therefore not relevant to Plaintiffs' allegations in this case.

20. Dr. Nye does not refute the Allen Report's analysis of each of the alleged misrepresentations during the Focus Period, which found no evidence of a price reaction to the alleged misrepresentations when made. In particular, the Allen Report analyzed the stock price reaction and market and analyst commentary following each of the alleged misrepresentations during the Focus Period and found that there was no statistically significant price increase and/or any indication that any analyst increased their price target or valuation of Apache due to the alleged misrepresentations.²⁷

21. Thus, the Allen Report showed there is no link between any of the alleged misrepresentations during the alleged Class Period and Apache's stock price movement during the Focus Period.

²⁷ Allen Report, ¶¶35-45.

C. For the April 23, 2019 alleged corrective disclosure, the Nye Reply Report fails to show *any* evidence of price impact from the alleged misrepresentations - the Nye Reply Report's claims are unscientific, contradict his own event study method and his finding of market efficiency, and call into question how his proposed common damages methodology could even work

1. Nye's claims regarding statistical significance are misleading and designed to create obfuscation – his claim that a non-statistically significant price reaction is meaningless is incorrect, contradicts his own methodology, and calls into question how his proposed common damages methodology could even work

22. Dr. Nye claims that a non-statistically significant price reaction is essentially meaningless and is not evidence supporting a lack of price impact.²⁸ However, this is incorrect, contradicts the very methodology Dr. Nye uses to establish reliance through the indirect test of market efficiency, and calls into question how Dr. Nye's proposed common damages methodology could even work.

23. Dr. Nye supports his claim that a non-statistically significant price reaction is not evidence supporting a lack of price impact by disingenuously quoting excerpts from a decision that is clearly basing its comments on a classic misunderstanding of statistics. Dr. Nye misleadingly omits the quotes from that decision that show this clear misunderstanding of statistics. In particular, Dr. Nye quotes from the decision in *Rooney v. EZCORP, Inc.* (“EZCORP”) to support his claim that a lack of a statistically significant price reaction does not show a lack of price impact.²⁹ However, the EZCORP discussion is based on a complete

²⁸ Nye Reply Report, ¶¶21, 61, 67, 69.

²⁹ Nye Reply Report, ¶¶21, 69 and footnotes 87, 242. Dr. Nye also cites to another decision (*St. Clair County Employees' Retirement System v. Acadia Healthcare Company, Inc.*), but this decision cites to EZCORP and thus falls under the same statistical misunderstanding.

Dr. Nye cites to additional decisions that note that only a lack of a statistically significant price reaction “does not prove lack of price impact with scientific certainty.” See for example, Nye Reply Report, ¶69 and *Carpenters Pension Trust Fund of St. Louis, et al. v. Barclays PLC, et al.*, Case No. 12-cv-5329 (SAS), Opinion and Order, dated August 20, 2015, p. 60. Nothing in the Allen Report would refute that point. As I made clear in my deposition, statistical tests rarely if ever prove anything with scientific certainty. See Allen Deposition, 90:20-91:4. Note that by that same logic the mere presence of a statistically significant price reaction also does not prove price impact “with scientific certainty.”

Moreover, the Allen Report relied on more than just a lack of a statistically significant reaction for its finding of no price impact. For example, the Allen Report showed that the allegedly corrective information, the deferral of gas production at Alpine High, was not a surprise to the market but was expected given the recent deterioration

misunderstanding of statistical significance. The *EZCORP* decision mistakenly claims (which was omitted in the Nye Reply Report): “[t]hese p-values suggest there is a 77 percent chance the corrective disclosures identified by Plaintiff negatively impacted EZCORP’s stock price on these dates.”³⁰ A p-value of 0.23 does *not* mean that one is 77% confident that a significant event happened. Instead, it means that there is only a 23% chance that a price reaction of the same magnitude would be observed given the range of normal stock price volatility.³¹ This is the *exact* type of statistical misinterpretation the Allen Report explained in detail and Dr. Nye does not dispute. Specifically, the Allen Report stated that:

Statistical significance is commonly misinterpreted. One example of these misinterpretations is that if a price reaction is statistically significant at the 23% level (*i.e.*, the p-value is 0.23), it means that one can be 77% confident that the stock price reacted to the event. However, this is *flatly wrong*.³² [Allen Report, ¶30]

24. This flatly wrong interpretation of statistical significance is exactly the interpretation the court in *EZCORP* mistakenly made. In fact, the Allen Report’s explanation of

of regional gas prices. The Allen Report also showed that the allegedly corrective information did not change the market’s expectations about Alpine High’s reserves or the mix of oil and wet gas vs. dry gas. Allen Report, ¶¶47-62.

³⁰ *Rooney v. EZCORP, Inc.* 330 F.R.D. 439 450 (W.D. Tex. 2019).

³¹ See, for example, Freedman, David A., and David H. Kaye, “Reference Guide on Statistics,” *Reference Manual on Scientific Evidence* (Washington, D.C.: Federal Judicial Center, 3rd ed., 2011) p. 250.

³² See, for example:

- Freedman, David A., and David H. Kaye, “Reference Guide on Statistics,” *Reference Manual on Scientific Evidence* (Washington, D.C.: Federal Judicial Center, 3rd ed., 2011) p. 252. (“[I]f results are significant at the 5% level, it is tempting to conclude that the null hypothesis has only a 5% chance of being correct. This temptation should be resisted.”); and p. 282. (“However, the 5% is often taken to be the chance of the null hypothesis given the data. This misinterpretation is commonplace in the social science literature, and it appears in some opinions describing expert testimony.”).
- Barnes, David W., “Too many probabilities: statistical evidence of tort causation,” *Law and Contemporary Problems* 64(191): 2001, p. 208. (“There is no convenient way to translate the .05 p-value into a ninety-five-percent confidence that the fact probability is correct, credible, believable, or true.”).

See, in addition, the following video from Khan Academy on “P-values and significance tests” for a simpler explanation of this concept. (“Sometimes people confuse this [the p-value] and they say: Hey is this the probability that the null hypothesis is true given the sample statistics that we got? And I would say, clearly, no, that is not the case. We are not trying to gauge the probability that the null hypothesis is true or not.”) Khan Academy, accessed at: <https://www.khanacademy.org/math/ap-statistics/xfb5d8e68:inference-categorical-proportions/idea-significance-tests/v/p-values-and-significance-tests>.

this common statistical misinterpretation used the exact same p-value (0.23) as the one used by the court in *EZCORP*. However, Dr. Nye still relied upon the *EZCORP* decision to support his claim that a lack of a statistically significant price reaction does not show a lack of price impact.

25. As explained in the Allen Report, and as stated by the former president of the American Financial Association, it is “incorrect to interpret the test as providing $(1 - \text{p-value})\%$ confidence that the effect being tested is ‘true.’”³³ In other words, it is incorrect to interpret the test as providing 77% confidence that the effect being tested is true. Instead, it means that there is only a 23% chance that a price reaction of the same magnitude would be observed given the range of normal stock price volatility.³⁴ Dr. Nye himself states that the p-value is the “conditional probability of observing a return as extreme as, or more extreme than, the return at issue.”³⁵ The conditional probability of observing a return as extreme is *not* the same as the likelihood that the effect being tested is true. Thus, in other words, Dr. Nye is correctly stating in his report the meaning of statistical significance while disingenuously relying on a decision that clearly has misunderstood the meaning.

26. A practical example that the lack of a statistically significant test result does provide important evidence is the FDA’s approval requirement for trials on drug efficacy. Specifically, if a statistical test of the hypothesis that a drug is more effective than a placebo fails at the 5% statistical significance level (*i.e.*, there is no statistically distinguishable difference in efficacy between the drug and a placebo), then the drug is rejected—the lack of statistical significance provides evidence that the drug is not better than a placebo.³⁶

³³ Harvey, Campbell R., “Presidential Address: The Scientific Outlook in Financial Economics,” *The Journal of Finance* 77(4): 2017, p. 1410 (“The p-value does not indicate whether the null hypothesis or the underlying experimental hypothesis is ‘true.’ It is also incorrect to interpret the test as providing $(1 - \text{p-value})\%$ confidence that the effect being tested is true.”). See also, Allen Report, ¶30.

³⁴ See, for example, Freedman, David A., and David H. Kaye, “Reference Guide on Statistics,” *Reference Manual on Scientific Evidence* (Washington, D.C.: Federal Judicial Center, 3rd ed., 2011) p. 250.

³⁵ Nye Reply Report, ¶62.

³⁶ See, for example, Kennedy-Shaffer, Lee, “When the Alpha is the Omega: P-Values, ‘Substantial Evidence,’ and the 0.05 Standard at FDA,” *Food Drug Law Journal*, 72(4): 2017, pp. 595-635, which describes the history of the use of statistics by the FDA in the decision-making process for new drugs.

27. Moreover, the lack of a statistically significant price reaction is considered by academics,³⁷ as well as courts,³⁸ as providing compelling evidence of no price impact. For example, according to the Second Circuit’s recent decision in *Arkansas Teacher Retirement System v. Goldman Sachs Group, Inc.*, (“*Goldman*”), “[i]f the stock price movement is indistinguishable from random price fluctuations, it cannot be attributed to company-specific information announced on the event date.”³⁹ As another recent example, the court in *Ramirez v. Exxon Mobil Corp.* (“*Exxon*”) concluded that Defendants had shown no price impact for an alleged corrective disclosure by showing the lack of a statistically significant reaction at the 5% level.⁴⁰ In addition, the Reference Manual on Scientific Evidence, which assists judges in managing cases involving complex scientific and technical evidence, states that “**when studies**

³⁷ See, for example, Freedman, David A., and David H. Kaye, “Reference Guide on Statistics,” *Reference Manual on Scientific Evidence* (Washington, D.C.: Federal Judicial Center, 3rd ed., 2011), p. 254.

See also the study in the *International Journal of Economics and Finance* which concludes there is no impact from an event given the lack of a statistically significant reaction: “On the announcement day (day zero), the abnormal return for the bank sector is -0.066% and for both the service and industrial sector is -0.293% and -0.368% respectively, with no significant impact as the t-statistics accept the null hypothesis that the downgrading event has no impact.” See Abdeldayem, Marwan M. and Ramzi Nekhili, “Credit Rating Changes and Stock Market Reaction in the Kingdom of Bahrain,” *International Journal of Economics and Finance*, 8(8):2016, pp. 23-32. See also Fisher, Franklin M., “Multiple Regression in Legal Proceedings,” *Columbia Law Review*, 80(4): 1980.

³⁸ See, for example, *Erica P. John Fund, Inc. v. Halliburton Company*, No. 3:02-CV-1152-M (N.D. Tex. July 25, 2015), (“To show that a corrective disclosure had a negative impact on a company’s share price, courts generally require a party’s expert to testify based on an event study that meets the 95% confidence standard [...] Coffman found an intraday statistically significant price reaction on Day 1 only at a 90% confidence level, which is less than the 95% confidence level both experts require in their regression analyses and which the Court finds is necessary. [...] In contrast, with and without a multiple comparison adjustment, Allen found no price impact on December 21, 2000. The Court agrees with Halliburton that there was no price impact on December 21, 2000, and finds that Defendants have rebutted the *Basic* presumption as to the allegedly corrective disclosure made on that date.”).

See also, *Arkansas Teacher Retirement System v. Goldman Sachs Group, Inc.*, No. 22-484, 2023 WL 5112157 (2d Cir. August 10, 2023), p. 20 and *Ramirez v. Exxon Mobil Corp.*, Civil Action 3:16-CV-03111-K (N.D. Tex. August 21, 2023), p. 38.

³⁹ *Arkansas Teacher Retirement System v. Goldman Sachs Group, Inc.*, No. 22-484, 2023 WL 5112157 (2d Cir. August 10, 2023), p. 20.

⁴⁰ *Ramirez v. Exxon Mobil Corp.*, Civil Action 3:16-CV-03111-K (N.D. Tex. August 21, 2023), p. 38, (“The Court concludes that Defendants have rebutted the *Basic* presumption by a preponderance of the evidence by showing that the alleged November 9, 2015, Corrective Disclosure did not impact Exxon Mobil’s stock price. Dr. Ferrell analyzed the reaction of Exxon Mobil’s stock price to the November 9, 2015, article and found no statistically significant negative price reaction.”) and p. 31 (“The Experts agree that price fluctuations should be statistically significant before the Court rejects the possibility that the fluctuations are merely the result of random price movements.”).

have a good chance of detecting a meaningful association, failure to obtain significance can be persuasive evidence that there is nothing much to be found.”⁴¹

28. Dr. Nye also claims that “given the low statistical power of single-firm event studies,” the absence of a statistically significant price reaction is meaningless.⁴² However, this means that Dr. Nye is admitting that his own event study that he uses to test whether information is rapidly incorporated into the stock price (an indirect test of reliance) is an unfair test that he would rely upon if it shows results in favor of the stock price incorporating news but that he would call meaningless if it showed the opposite result. Moreover, this biased view of an event study critically calls into question how Dr. Nye’s proposed common damages methodology, which relies on an event study, could even work. Given that Plaintiffs’ and Dr. Nye’s proposed common damages methodology includes the use of an event study to determine “Company-specific price movements caused by the revelation of true facts related to the alleged fraud,” this clearly indicates that Plaintiffs and Dr. Nye contend their proposed event study approach has a “good chance of detecting a meaningful association.”⁴³ Yet, if the result is not statistically significant, Dr. Nye could and presumably would still argue that the statistically insignificant price movement should be included in damages because the absence of statistical significance is meaningless. This “heads I win, tails I win anyway” approach is unscientific and makes no sense in a field that is replete with analyses of statistical significance. Instead, consistent with the academic literature and common sense, if Dr. Nye’s own event study yields no statistically significant price reaction, it does provide evidence in favor of no price impact.⁴⁴

⁴¹ Freedman, David A., and David H. Kaye, “Reference Guide on Statistics,” *Reference Manual on Scientific Evidence* (Washington, D.C.: Federal Judicial Center, 3rd ed., 2011), p. 254, emphasis added.

See, also, the study in the *International Journal of Economics and Finance* which concludes there is no impact from an event given the lack of a statistically significant reaction: “On the announcement day (day zero), the abnormal return for the bank sector is -0.066% and for both the service and industrial sector is -0.293% and -0.368% respectively, with no significant impact as the t-statistics accept the null hypothesis that the downgrading event has no impact.” See, Abdeldayem, Marwan M. and Ramzi Nekhili, “Credit Rating Changes and Stock Market Reaction in the Kingdom of Bahrain,” *International Journal of Economics and Finance*, 8(8):2016, pp. 23-32. See also, Fisher, Franklin M., “Multiple Regression in Legal Proceedings,” *Columbia Law Review*, 80(4): 1980.

⁴² Nye Reply Report, ¶67.

⁴³ Nye Report, ¶67. See also, Freedman, David A., and David H. Kaye, “Reference Guide on Statistics,” *Reference Manual on Scientific Evidence* (Washington, D.C.: Federal Judicial Center, 3rd ed., 2011), p. 254.

⁴⁴ This assumes that there is no confounding news.

29. Moreover, according to Dr. Nye’s arguments, including that there is “no requirement in economics that material information must induce a price reaction that is considered to be statistically significant at a particular level,” Dr. Nye’s proposed common damages methodology would not be able to measure damages on a class-wide basis since there would be no way to statistically distinguish the alleged price reaction to the April 23, 2019 alleged corrective disclosure from noise or unrelated news, because Dr. Nye would never claim that any test of statistical significance, no matter what the result, is evidence in favor of noise over an alleged corrective disclosure.⁴⁵

30. Further, Plaintiffs claim that they do not need to prove individualized reliance on the alleged misrepresentations since Apache’s stock traded in an efficient market that reflected all publicly available information, including the alleged misrepresentations, and thus there is a link between Apache’ stock price and the alleged misrepresentations.⁴⁶ In particular, Plaintiffs rely on an indirect test of reliance: “courts may presume that investors trading in efficient markets indirectly rely on public, material misrepresentations through their ‘reliance on the integrity of the price set by the market.’”⁴⁷ Plaintiffs rely on Dr. Nye’s event study to test the responsiveness of Apache’s stock price to new information and show Apache traded in an efficient market, and thus try to indirectly show that there is a link between the stock price and the alleged misrepresentations.⁴⁸ (Plaintiffs show this link indirectly since Dr. Nye tests earnings announcements and not the actual alleged misrepresentations.) However, Dr. Nye’s own event study shows that there is *no* statistically detectable reaction to the alleged correction of the alleged misrepresentations on April 23, 2019. In other words, using Dr. Nye’s own test, but applying it *directly* to the alleged misrepresentations and their alleged correction, shows that there is no link between Apache’s stock price during the Focus Period and the alleged misrepresentations.

31. Dr. Nye ignores that the Allen Report found that there is no price impact from the April 23, 2019 alleged corrective disclosure based not only on the absence of a statistically significant price reaction but also on other substantial market evidence. For example, the Allen

⁴⁵ Nye Reply Report, ¶68.

⁴⁶ Plaintiffs’ Motion for Class Certification, pp. 15-16.

⁴⁷ *Basic Inc. v. Levinson*, 485 U.S. 224 (1988).

⁴⁸ Plaintiffs’ Motion for Class Certification, p. 20.

Report showed that the allegedly corrective information, the deferral of gas production at Alpine High, was not a surprise to the market but was expected given the recent deterioration of regional gas prices. The Allen Report also showed that the allegedly corrective information did not change the market's expectations about Alpine High's reserves or the mix of oil and wet gas vs. dry gas.⁴⁹ Dr. Nye either has no response to this substantial market evidence or, as will be discussed below, makes claims that are misleading and incorrect. As I made clear in my deposition, statistical tests rarely if ever prove anything with scientific certainty.⁵⁰ (Note by that same logic, the mere presence of a statistically significant price reaction also does not prove price impact with scientific certainty.)

2. Nye's use of a cumulative four-day event window when no individual day is statistically significant is cherry-picked, unscientific, non-standard, and contradicts his own event study method

32. Dr. Nye claims that the Allen Report "ignores the statistically significant multi-day price declines observed" following the April 23, 2019 alleged corrective disclosure.⁵¹ This is flatly incorrect. The Allen Report did not ignore the days following the April 23, 2019 alleged corrective disclosure, and in fact showed that according to both Dr. Nye's event study and the alternative event study, there was no statistically significant decline in Apache's stock price on April 23, 24, 25, and 26, 2019.⁵²

33. The Nye Reply Report further claims that according to Dr. Nye's event study model, "the two-, three- and four-day declines in Apache's stock price are statistically significant at the 92.59%, 98.96% and 99.01% confidence levels," and according to the alternative event study model, "the three- and four-day stock price declines are likewise statistically significant at the 94.33% and 96.56% confidence levels."⁵³ Referring to these statistical results is non-standard, unscientific, contradicts Dr. Nye's first report and clearly the result of cherry-picking.

34. First, Dr. Nye's Reply Report disingenuously fails to say that *not one* individual day during the cumulative four-day event window was statistically significant, and importantly

⁴⁹ Allen Report, ¶¶48, 53-62.

⁵⁰ Allen Deposition, 90:20-91:4.

⁵¹ Nye Reply Report, ¶23.

⁵² Allen Report, ¶¶47-52.

⁵³ Nye Reply Report, ¶23.

not April 23, 2019, the date on which the allegedly corrective information was revealed *pre-market open*.⁵⁴ Thus, the market had a full day to impound the allegedly corrective information for the event study on April 23. Moreover, even ignoring how scientifically unsound Dr. Nye's analysis is, his cumulative two-day event window is *not* statistically significant under both models and his cumulative three-day event window is *not* statistically significant under the alternative event study model. The figure below is a table from the Nye Reply Report where I have indicated the non-statistically significant dates/windows in orange. As the table shows, the price reactions on each individual day were *not* statistically significant, as well as the cumulative two-day event window (under both event study models), and the cumulative three-day event window (under the alternative event study model).

Nye Reply Report Table for April 23, 2019 Alleged Corrective Disclosure

Event Window	Nye Event Study			Allen Alternative Event Study		
	Company-Specific Return	t-Stat	Confidence Level	Company-Specific Return	t-Stat	Confidence Level
4/23/2019	-1.45%	-1.05	70.64%	-1.37%	-0.99	67.77%
4/24/2019	-2.04%	-1.48	86.06%	-0.75%	-0.54	41.28%
4/25/2019	-2.67%	-1.94	94.62%	-2.47%	-1.78	92.38%
4/26/2019	-1.01%	-0.73	53.29%	-1.31%	-0.94	65.11%
2-Day Event Window (4/23-24/2019)	-3.49%	-1.79	92.58%	-2.13%	-1.09	72.12%
3-Day Event Window (4/23-25/2019)	-6.16%	-2.58	98.96%	-4.60%	-1.91	94.33%
4-Day Event Window (4/23-26/2019)	-7.17%	-2.60	99.01%	-5.91%	-2.13	96.56%

Source: Nye Report Exhibit 11; NERA_019129

35. Dr. Nye is not claiming and has not shown that there was any new fraud-related information released over any of the three days following April 23. If Dr. Nye is making the claim that it takes four days to begin to statistically find an effect of the alleged corrective disclosure, this claim would be completely contrary to Dr. Nye's own finding that Apache traded in an efficient market where its stock price responds "promptly" to "new, unexpected, value relevant" information.⁵⁵

⁵⁴ "Apache Corporation Announces Temporary Deferral of Alpine High Natural Gas Production in Response to Recent Pricing at Waha Hub," *Globe Newswire*, April 23, 2019, 6:30 am.

⁵⁵ Nye Report, ¶¶56, 60.

Note that Dr. Nye cites to a report I wrote in the *Beckel v. Fagron Holdings USA, LLC* ("*Fagron*") case to support his arbitrary use of a multi-day event window. See, Nye Reply Report, ¶22.

However, the *Fagron* case was not a securities class action, there was no fraud-on-the-market theory, and there was no claim of market efficiency. Moreover, the individual one-day price reactions were all statistically

36. In addition, Dr. Nye's use of a cumulative four-day statistical test (when not a single day was individually statistically significant) for an event study contradicts his own methods and conclusions. Contrary to his arbitrary use of a cumulative four-day event window for the April 23, 2019 alleged corrective disclosure, in his first report, Dr. Nye used standard one-day statistical tests in his event study of earnings announcements.⁵⁶ Dr. Nye's use of a cumulative four-day window on this day is also in stark contrast to his claim that Apache's stock price "plummeted immediately" after Mr. Keenan's departure was announced on the October 25, 2019 alleged corrective disclosure, but then "rebounded" and "stabilized" in approximately *one hour* to the news that Mr. Keenan's resignation was not related to the Suriname well.⁵⁷ Thus, Dr. Nye appears to completely change the design of his test in order to find a result that supports his client's claims. Basic principles dictate that "peeking at the data" before designing a test is unscientific.⁵⁸

37. The unscientific and results-oriented nature of Dr. Nye's analysis is further demonstrated by the fact that the academic literature he cites specifically for his use of a multi-day window for the April 23, 2019 alleged corrective disclosure does not support his method. The academic literature he cites does not support his claims and argues against market efficiency, is completely theoretical, and/or directly contradicts his own claims.⁵⁹ For instance,

significant, unlike in this case, where *not* a single one-day price reaction is statistically significant. See, Expert Report of Lucy P. Allen in *Fagron*, filed April 5, 2019, ¶¶22-26.

As I explained in my deposition, analyzing a multi-day event window in this case is not appropriate given that there was no statistically significant reaction on the first day the allegedly corrective information was announced. See, Allen Deposition, 122:21-125:11.

⁵⁶ Nye Report, ¶¶54-60 and Exhibit 12.

⁵⁷ Nye Reply Report, ¶37.

⁵⁸ See for example, De Veaux, Richard D., Paul F. Velleman, and David E. Bock, *Stats Data and Models* (Pearson Education, Inc.: Boston, MA, 3rd ed., 2012), p. 491.

⁵⁹ For example:

- *Zhang* finds that the returns of high-uncertainty stocks (such as Apache according to Dr. Nye) are predictable, which would directly violate Dr. Nye's finding of market efficiency for Apache. (Zhang, X. Frank, "Information Uncertainty and Stock Returns," *The Journal of Finance*, (Vol. 61, 2006), pp. 105–136 at 106.).
- *Dow and Gorton*, *Kyle*, and *Grossman and Stiglitz* are completely theoretical works on complex trading patterns between informed and uninformed traders and thus do not support Dr. Nye's empirical claim that Apache's stock price continued responding to the April 23, 2019 alleged corrective disclosure until four days after the information was released. Moreover, *Dow and Gorton* theorize that "[t]he pattern of price response over time may be so complicated that there is no apparent relationship between the arrival of new information and the price," which would call into question the applicability of Dr. Nye's event study methodology for Apache. (Dow, James and Gary Gorton, "Trading, Communication and the

the MacKinlay paper Dr. Nye cites to explicitly states that the reason they would use a two-day event window is because it “captures the price effects of announcements which occur after the stock market closes on the announcement day.”⁶⁰ The rationale for a two-day event window therefore directly contradicts Dr. Nye’s claims since the allegedly corrective information on April 23, 2019 came out *before* the market opened. Moreover, not only is Dr. Nye’s analysis non-standard and inconsistent within his analyses in this case, but it is also not consistent with his analyses in prior reports.⁶¹

38. In addition, courts have found that the use of a cumulative two-day window is inappropriate in situations like this. (Note, in my experience, I am unaware of a situation such as this, where Plaintiffs are applying the “fraud-on-the-market” theory and therefore claiming market efficiency, while also using the type of four-day window proposed here by Dr. Nye). For example, the court in *Exxon* concluded that the use of a cumulative two-day event window was

Response of Asset Prices to News,” *The Economic Journal*, (Vol. 103, Issue 418, 1993), pp. 639–646 at 639. Kyle, Albert S., “Continuous Auctions and Insider Trading,” *Econometrica*, (Vol. 53, No. 6, 1985), pp. 1315–1335. Grossman, Sanford J. and Joseph E. Stiglitz, “On the Impossibility of Informationally Efficient Markets,” *The American Economic Review*, (Vol. 70, Issue 3, 1985), pp. 393–408.).

- *Mitchell and Netter* state that “stock prices react quickly to the release of new information, in many cases the event window will be relatively short, sometimes as short as one trading day,” which directly calls into question Dr. Nye’s use of a cumulative four-day event window. In addition, *Mitchell and Netter* explicitly state that “long event windows may include noise and information from other events, making it difficult to isolate the impact of the relevant event.” This statement implies that Dr. Nye’s use of a cumulative four-day event window following the April 23, 2019 alleged corrective disclosure may erroneously include stock price movements due to events unrelated to the alleged corrective disclosure. (Mitchell, Mark L. and Jeffrey M. Netter, “The Role of Financial Economics in Securities Fraud Cases: Applications at the Securities and Exchange Commission,” *The Business Lawyer*, (Vol. 49, 1994), pp. 545–590 at 545 and 558.).
- *Tabak and Dunbar* alert that “a longer event window is more likely to “[pick] up other effects unrelated to the event under consideration,” thus calling into question how Dr. Nye’s results-oriented cumulative four-day event window could isolate Apache’s stock’s price reaction to the April 23, 2019 alleged corrective disclosure. In addition, *Tabak and Dunbar* state that “it is helpful to have some rationale for the length of the event window chosen,” which Dr. Nye clearly does not have. (Tabak, David I., and Frederick C. Dunbar, “Materiality and Magnitude: Event Studies in the Courtroom,” *Litigation Services Handbook: The Role of the Financial Expert* (John Wiley & Sons, Inc.: New York, NY, 3rd ed., 2001), Ch. 19, p. 4.).
- *Berk and DeMarzo* state that “we expect [...] the stock price to react nearly instantaneously” and that “most investors would find that the stock price already reflected the new information before they were able to trade on it,” thus directly contradicting Dr. Nye’s claim that the Apache stock’s price reaction cannot be statistically detected until four days after the April 23, 2019 alleged corrective disclosure. (Berk, Jonathan and Peter DeMarzo, *Corporate Finance* (Pearson Education, Inc.: Boston, MA, 3rd ed. 2014), Ch. 9, p. 296.).

⁶⁰ MacKinlay, A. Craig, “Event Studies in Economics and Finance,” *Journal of Economic Literature*, Vol. 35, 1997, pp. 13–39 at p. 15.

⁶¹ See for example, the expert reports listed in Dr. Nye’s curriculum vitae in his Reply Report.

“unsuitable” since the stock traded in an efficient market and there was no new information released on the second day.⁶² Similarly in this case, Dr. Nye claims that Apache’s stock traded in an efficient market and there was no new information released on the second, third or fourth day.

39. In sum, Dr. Nye’s use of a cumulative four-day event window when *no* individual day is statistically significant is cherry-picked, non-standard, and contradicts his own event study method.

3. If Nye had applied his cumulative four-day approach to his market efficiency analysis, the majority of the “event” days Nye found to be significant would no longer be significant, contradicting his own finding of market efficiency

40. Telling evidence that Dr. Nye’s event study approach for the alleged corrective disclosure on April 23, 2019 is unscientific, non-standard and merely results-oriented is that if he used this approach in his “cause-and-effect relationship” analysis from his initial report, he would get completely different results.

41. In his first report, Dr. Nye performs a “cause-and-effect relationship” test using an event study to analyze whether Apache’s stock traded in an efficient market during the alleged Class Period. Dr. Nye’s cause-and-effect relationship test uses his event study to test Apache’s stock price reactions on “event” dates (*i.e.*, dates on which Apache released quarterly or yearly financial results and/or financial guidance) and “non-event” dates.⁶³ Dr. Nye then uses statistical tests to analyze whether there are differences between the price reactions on “event” dates vs. “non-event” dates.⁶⁴ Dr. Nye uses exclusively one-day event windows and finds that nine out of 14 “event” dates (or 64%) are associated with a statistically significant reaction.⁶⁵ Dr. Nye then finds “there exists a higher probability of observing statistically significant Company-specific

⁶² *Ramirez v. Exxon Mobil Corp.*, Civil Action 3:16-CV-03111-K (N.D. Tex. August 21, 2023), p. 36 (“In this case, a two-day window is unsuitable for measuring price impact in an efficient market”). See also, Memorandum Opinion and Order, *The Erica P. John Fund, Inc. v. Halliburton Company and David J. Lesar* (3:02-CV-1152-M), filed July 25, 2015, pp. 29-30 (“The Court finds that, in this case, the use of a two-day window is inappropriate to measure price impact in an efficient market. An efficient market is said to digest or impound news into the stock price in a matter of minutes; therefore, an alleged corrective disclosure released to the market at the start of Day 1, coupled with an absence of price impact throughout Day 1, followed by a price impact on Day 2, will not show price impact as to the alleged corrective disclosure.”).

⁶³ Nye Report, ¶57.

⁶⁴ Nye Report, ¶58.

⁶⁵ Nye Report, ¶58.

returns (at or above the 95% confidence level) on event dates during the Class Period.”⁶⁶ Based on these findings, Dr. Nye concludes that his “analysis confirms that Apache’s common stock price typically reacted more strongly on event dates than on non-event dates.”⁶⁷

42. However, if one were to apply Dr. Nye’s arbitrary, non-standard cumulative four-day window approach to his market efficiency analysis, more than half of the “event” days Dr. Nye analyzed and found to be significant in his first report would no longer be significant (shown in the table below) and his conclusion “that there exists a higher probability of observing statistically significant Company-specific returns on event dates during the Class Period” would no longer hold.

1-Day v. 4-Day Event Window Price Reactions For Nye's News Dates using Nye's Model									
Nye's News Date	Reaction	Earnings	Alleged	1-Day		4-Day		Still	
	Date	Release Period	Misrep.?	t-stat.	Stat. Sig.? ¹	t-stat.	Stat. Sig.? ¹	Stat. Sig.? ²	
1.	11/3/16	11/3/16	3Q16	Yes	-4.47	Yes	-2.00	Yes	Yes
2.	2/23/17	2/23/17	FY16	Yes	-2.78	Yes	-1.22	No	No
3.	5/4/17	5/4/17	1Q17	Yes	0.44	No	1.62	No	-
4.	8/3/17	8/3/17	2Q17	Yes	-3.93	Yes	-2.27	Yes	Yes
5.	11/2/17	11/2/17	3Q17	Yes	-0.81	No	1.60	No	-
6.	2/22/18	2/22/18	FY17	Yes	-7.10	Yes	-3.99	Yes	Yes
7.	5/2 & 5/3/18	5/3/18	1Q18	Yes	-4.58	Yes	-1.73	No	No
8.	8/1 & 8/2/18	8/2/18	2Q18	Yes	-1.12	No	1.92	No	-
9.	10/31 & 11/1/18	11/1/18	3Q18	No	-4.04	Yes	-1.10	No	No
10.	2/27 & 2/28/19	2/28/19	FY18	Yes	0.23	No	0.01	No	-
11.	5/1 & 5/2/19	5/2/19	1Q19	Yes	-2.51	Yes	-0.82	No	No
12.	7/31 & 8/1/19	8/1/19	2Q19	Yes	2.57	Yes	1.78	No	No
13.	10/30 & 10/31/19	10/31/19	3Q19	No	0.60	No	0.97	No	-
14.	2/26 & 2/27/20	2/27/20	FY19	No	3.51	Yes	1.00	No	No
No. Stat. Sig. Days:					9		3		
% of Stat. Sig. Days:					64%		21%		
Notes and Sources:									
Data from the Nye Report and Dr. Nye's Turnover.									
¹ Significance for 1-day is based on the price reaction's t-statistic, calculated as the price reaction divided by the standard error of the regression over the sample period. Significance for 4-day is based on Dr. Nye's methodology. "Yes" indicates that the price reaction is statistically significant at the 5% level.									
² "Yes" indicates that both the 1-day and 4-day price reactions are statistically significant at 5% level. "No" indicates that the 1-day price reaction is statistically significant at 5% level but the 4-day price reaction is not.									

⁶⁶ Nye Report, footnote 114.

⁶⁷ Nye Report, ¶58.

43. Applying the unorthodox event study method that Dr. Nye is now using for the April 23, 2019 alleged corrective disclosure, he would find, contrary to his conclusions in his initial report, that six “event” dates are actually *not* statistically significant (February 23, 2017, May 3, 2018, November 1, 2018, May 2, 2019, August 1, 2019 and February 27, 2020).⁶⁸ Thus, Dr. Nye would find that only three of his 14 “event” days (or 21%) had statistically significant price reactions. Moreover, using Dr. Nye’s own test from his initial report to analyze whether there are differences between the price reactions on “event” dates vs. “non-event” dates,” Dr. Nye would find there is no statistically significant difference (*i.e.*, there would *not* exist “a higher probability of observing statistically significant Company-specific returns on event dates during the Class Period”). Thus, using Dr. Nye’s own test (calculate statistical significance using a cumulative four-day window) that he now puts forward in the Nye Reply Report, he would have to conclude that Apache’s stock price reacted similarly on “non-event” dates as on “event” dates, and that the stock fails his own test of market efficiency.⁶⁹

44. Moreover, using a cumulative four-day event window further contradicts Dr. Nye’s findings from his initial report. In particular, in his initial report, Dr. Nye outlines the specific reasons why the results of his event study (*i.e.*, either a statistically significant reaction or not) are consistent with the news that was announced on each of his “event” days. However, since the vast majority of his “event” dates that he previously found to be statically significant would no longer be significant using a cumulative four-day window, his analysis of the reasons the stock moved would no longer make sense. For example, on February 23, 2017 (row 2 in the table above), according to Dr. Nye’s first report there was a statistically significant decline in Apache’s stock price. Applying Dr. Nye’s methodology under a two-, three-, or four-day event window, the cumulative stock price decline on that day is no longer statistically significant.⁷⁰ However, Dr. Nye claims that “the statistically significant decline on February 23, 2017 is consistent with that expected in an efficient market,” which would completely contradict the

⁶⁸ Note that four of these dates are alleged misrepresentation dates.

⁶⁹ In particular, using Dr. Nye’s own test, a “two-sample z-test,” the proportion of “event” dates that are statistically significant is not statistically different from the proportion of “non-event” dates that are statistically significant.

⁷⁰ Significance for two-day, three-day and four-day is based on Dr. Nye’s methodology using data from Dr. Nye’s Turnover.

finding according to his new methodology using a longer event window.⁷¹ Specifically, Dr. Nye states that:

Given that (i) Apache’s earnings and EBITDA were lower than expectations due to lower liquids volumes and price realizations than expected”; and (ii) the Company provided a “much weaker than anticipated outlook for 2017 volumes and cash flows,” the statistically significant Company-specific stock price decline on February 23, 2017 is consistent with that expected in an efficient market.” [Nye Report, Exhibit 12]

45. In sum, telling evidence that Dr. Nye’s event study approach for the alleged corrective disclosure on April 23, 2019 is unscientific, non-standard, and merely results-oriented is that if he used this approach in his “cause-and-effect relationship” analysis from his initial report, he would get completely different results, including Apache’s stock failing his own test of market efficiency.

4. The Nye Reply Report’s claims regarding analyst commentary following the April 23, 2019 alleged corrective disclosure are misleading and incorrect – analysts consistently characterized the deferral as “expected” and “prudent” given the deteriorating commodity prices

46. Dr. Nye’s claims regarding analyst commentary following the April 23, 2019 alleged corrective disclosure are misleading and incorrect. Analysts consistently characterized the deferral as “expected” and “prudent” given the deteriorating commodity prices.

47. Dr. Nye claims that three analysts lowered their production estimates for Alpine High after the alleged corrective disclosure.⁷² However, two of the analysts (Capital One and Barclays) termed the reduction as having “minimal” impact and the other analyst (Cowen) issued an industry report, which was updating estimates for many other E&P companies and linked the Alpine High “shut-ins” to the low Waha pricing.⁷³ Further, the analyst commentary indicates that the change in production estimates was “expected” and thus in an efficient market already impounded into the stock price. Contrary to Dr. Nye’s claims, no analysts, including the three

⁷¹ Nye Report, Exhibit 12. Note a review of news articles on Factiva about Apache yielded no positive confounding news on the following three days.

⁷² Nye Reply Report, ¶25.

⁷³ Cowen analyst report, dated April 26, 2019 and Nye Reply Report, ¶25.

Dr. Nye claims lowered their production estimates, lowered their price targets of Apache after the alleged corrective disclosure.⁷⁴

48. Dr. Nye claims that analysts characterized the deferral as a “negative” event.⁷⁵ However, negative does not mean unexpected, and consistent with the lack of a statistically significant decline on this date, analysts either stated the deferral was “prudent” and “expected” due to the dramatic decline in Waha prices (which were close to zero at this point in time) or linked it to the decline in Waha prices. For example, Dr. Nye cites to a Macquarie analyst report to support his claim. However, the Macquarie analysts described the announcement as “not much of a negative, in our view,” and that given the “severity of local Permian natural gas pricing weakness, we think the deferral of gas is prudent and likely expected by investors”:

Given the severity of local Permian natural gas pricing weakness, we think the deferral of gas is **prudent** and likely **expected** by investors. [...] However, the announcement itself is **not that much of a negative**, in our view. [Macquarie, 4/23/19, emphasis added]

49. Analysts at Scotiabank and Stephens stated that the deferral of Alpine High production was due to the “extremely low” current Waha Hub natural gas price and was not a surprise to the market:

APA announced that **due to extremely low prices at Waha Hub**, it has initiated natural gas volume deferrals at Alpine High. [...] While optically we view the release as a negative, **we do not think it is a surprise to the market** that depressed Waha pricing is hampering Alpine cash generative capabilities. [Stephens, 4/23/19, emphasis added]

Not unexpectedly, Apache has decided to defer certain natural gas production out of its gas-heavy Alpine High position in the Permian Basin **due to extremely low WAHA hub pricing**. [Scotiabank, 4/23/19, emphasis added]

50. Hence, Dr. Nye’s claim that this alleged corrective disclosure changed the market’s view of Alpine High economics in a “low-price environment” is baseless as the market was already aware and expected the deferral due to the extremely low-price environment.⁷⁶

⁷⁴ Based on FactSet Research Systems, Inc. and available analyst reports from Refinitiv Eikon and the Company.

⁷⁵ Nye Reply Report, ¶26.

⁷⁶ Nye Reply Report, ¶33.

51. In addition, Dr. Nye incorrectly claims that the Allen Report’s analyses seek to “rebut Plaintiffs’ allegations regarding ‘loss causation.’”⁷⁷ The reason for the deferral is irrelevant as the Allen Report has already shown that there was no statistically significant price reaction to the announcement of the deferral according to both Dr. Nye’s event study and the alternative event study, consistent with analyst commentary that the deferral was “expected.”⁷⁸

52. Moreover, as discussed in the Allen Report, not a single analyst attributed the deferral to any new information about Alpine High’s quantity or mix of oil and wet gas vs. dry gas.⁷⁹ Instead, analysts described Alpine High’s production deferral as a “shut-in,” which is defined as “available oil or gas which is not being produced from an existing well.”⁸⁰ In other words, according to analysts, there was available oil or gas at Alpine High but it was not being produced. Analysts noted that the shut-ins at Alpine High were due to the weak commodity price outlook.

To date, we’ve already seen **Waha regional gas pricing** (\$1.428/Mcf in 1Q19, - \$0.29 in 2Q19) **compel shut-ins at Alpine High** for APA, and we suspect that a combination of weak pricing and physical constraints should create some near-term noise until pipelines come online in 3Q. [Cowen, 4/26/19, emphasis added]

On Tuesday (4/23/19) APA announced that it initiated **natural gas production volume deferrals (shut-ins) in the Alpine High operating area** starting in late March **due to ‘extremely low prices at Waha Hub’** in the Permian Basin. Management will monitor daily natural gas prices and will return shut-in gas to sales when it is profitable [Barclays, 4/28/19, emphasis added]

53. Further, as discussed above, Dr. Nye ignores that none of the analysts changed their understanding of Alpine High’s reserves or mix of oil and wet gas vs. dry gas. For example, Credit Suisse analysts estimated Alpine High’s “unbooked reserves” of wet gas, dry gas, and oil throughout the Focus Period.⁸¹ Credit Suisse analysts did not update their estimates of Alpine High’s “unbooked reserves” in the week following the April 23, 2019 alleged corrective disclosure. When they updated their estimates on May 2, 2019, there was essentially no change

⁷⁷ Nye Reply Report, ¶32.

⁷⁸ Allen Report, ¶¶47-62.

⁷⁹ Allen Report, ¶¶59-62.

⁸⁰ “Shut-in,” *Merriam Webster*, accessed at: <https://www.merriam-webster.com/dictionary/shut-in>.

⁸¹ “Unbooked reserves” reflect the quantity of reserves in a play that are possible and probable, but not proven. See Allen Report, footnote 112.

in the estimated quantity or mix of Alpine High’s “unbooked reserves” of wet gas, dry gas, and oil.⁸²

D. For the October 25, 2019 alleged corrective disclosure, the Nye Reply Report fails to show *any* evidence of price impact from the alleged misrepresentations - failing to identify any new news about Alpine High, ignoring that the market commentary is essentially unanimous in directly attributing the stock price decline to Suriname speculation while not a single analyst attributes the stock price decline to new news about Alpine High

54. The Nye Reply Report claims that the Allen Report failed to demonstrate a lack of price impact associated with the October 25, 2019 alleged corrective disclosure. Dr. Nye offers the following six justifications for his conclusion:

- i. the news of Mr. Keenan’s departure caused a statistically significant price decline,
- ii. the Allen Report did not identify “any other factor that may have contributed to the stock price decline that day,”
- iii. the Company did not provide a reason for Mr. Keenan’s departure but “explicitly stated that it was ‘not connected to Suriname,’”
- iv. Mr. Keenan was considered the “Godfather” of Alpine High,
- v. “all analysts that issued reports following the disclosure, as well as news commentators, cited the disappointing performance of Alpine High,” and
- vi. “any assumptions regarding the reason(s) for Mr. Keenan’s departure are premature given that fact discovery is ongoing.”⁸³

However, all of Dr. Nye’s reasons are incorrect and/or misleading, and Dr. Nye fails to show *any* evidence of price impact from the alleged misrepresentations. Dr. Nye fails to identify any new news about Alpine High that was released on this date and ignores that the market commentary is

⁸² Allen Report, ¶61.

⁸³ Nye Reply Report, ¶43.

essentially unanimous in *directly* attributing the stock price decline to Suriname speculation and that not a single analyst attributes the stock price decline to any new news about Alpine High.

55. Regarding Dr. Nye's first and second reasons (Mr. Keenan's departure caused a statistically significant price decline and the Allen Report did not identify "any other factor that may have contributed to the stock price decline that day"), the Allen Report showed that the market commentary is essentially unanimous in *directly* attributing the stock price decline on October 25, 2019 to concerns about Apache's Suriname wells and not to any new news about Alpine High.⁸⁴ All analyst reports and news stories that commented on Apache's stock price decline on October 25, 2019 attributed the price decline to Suriname, not to any new news about Alpine High.⁸⁵ The market commentary was unanimous in indicating that Mr. Keenan's departure came at a critical time in the exploration of Apache's highly anticipated Suriname well, and thus created investor concern about Apache's prospects in Suriname. The three analysts that issued reports on October 25, 2019 *directly* attributed Apache's stock price decline on that day to the market's concerns about Apache's Suriname well and not to any new news about Alpine High. As detailed in the Allen Report, RBC, Truist Securities, and Credit Suisse issued reports on October 25, 2019:

We think APA share weakness is a reaction to investor concern that the resignation is related to the outcome of APA's Maka-1 exploration well in Suriname. [RBC Capital Markets, 10/25/19, emphasis added]

Apache's stock underperformed this morning (down ~5.5% vs. XOP up ~1%) **on investor speculation that a SVP's resignation** (See Link) **is linked to an upcoming unsuccessful Suriname** Maka-1 exploration well in Block 58. [Truist Securities, 10/25/19, emphasis added]

More recently, APA has ventured into Suriname where it is currently drilling one of the most highly-anticipated exploration wells of the year [...] **Timing of resignation is concerning.** While Mr. Keenan's exact role in Suriname is not clear (APA claims the resignation is not connected to the exploration prospect), **APA is underperforming peers** by >5% today given the timing of the departure of the head of Worldwide Exploration when the company is on the 31st day of drilling the **Suriname well**, i.e. is now within the expected 30-60 day spud-to-TD window. **Today's sell-off nonetheless highlights the high expectations for the**

⁸⁴ Allen Report, ¶¶65-74.

⁸⁵ Note Dr. Nye cites to a *Seeking Alpha* article published on February 28, 2020 that states Apache's stock price on October 25, 2019 "dropped in part because Keenan was the Godfather of Alpine High." However, it was not new news that Mr. Keenan was the "Godfather of Alpine High" and in an efficient market, information that is not new cannot impact the stock price. Nye Reply Report, ¶40.

well already baked into APA's stock price[.] [Credit Suisse, 10/25/19, emphasis original and added]

Thus, the Allen Report clearly identified the factor that according to analysts caused the statistically significant decline on October 25, 2019 – market concern about Apache's highly anticipated Suriname well, which was at a critical time in its exploration.

56. Regarding Dr. Nye's third reason (the Company did not provide a reason for Mr. Keenan's departure but "explicitly stated that it was 'not connected to Suriname'"), market and analyst commentary *after* October 25, 2019 similarly attributed the overall price decline on October 25 to concerns about Apache's Suriname well.⁸⁶ In fact, on October 31, 2019, Credit Suisse analysts explicitly noted that even though Mr. Keenan's departure was "supposedly unrelated to Suriname," given that expectations for Apache's Suriname well were "exceedingly high" and the announcement came in the middle of drilling the well, "the timing nonetheless spooked investors."⁸⁷ A *Wall Street Journal* article published months later in December 2019 characterized Apache's Suriname well as "among the most anticipated wells in the world" and similarly explained that the drop in Apache's stock on October 25, 2019 was "prompt[ed] [by] concern about Suriname."⁸⁸ Thus, Dr. Nye's claim that the decline in Apache's stock on October 25, 2019 is due to Alpine High since Apache "explicitly stated that [Mr. Keenan's departure] was 'not connected to Suriname'" is completely unsupported and contrary to market commentary indicating that the Company's statement that Mr. Keenan's departure was not related to Suriname did not fully alleviate market concern about the Suriname well.

57. Regarding Dr. Nye's fourth and fifth reasons (Mr. Keenan was considered the "Godfather" of Alpine High and "all analysts that issued reports following the disclosure, as well as news commentators, cited the disappointing performance of Alpine High"), Dr. Nye flatly

⁸⁶ See, for example RBC analyst report on October 30, 2019, ("Recent APA share weakness reflected concern on the Suriname program following a management departure.") and "Apache Shares Plunge Following Scant Update on South American Oil Prospect," *Wall Street Journal*, December 2, 2019. ("In late October, Apache shares fell 5% in a day after it was reported that the company's senior vice president of world-wide exploration, Steve Keenan, has resigned, prompting concern about Suriname.").

⁸⁷ Credit Suisse analyst report, October 31, 2019, ("Expectations for the well are exceedingly high, underscored by the sharp selloff in the stock last Friday after news broke that APA's head of Worldwide Exploration had departed the company – supposedly unrelated to Suriname, though with APA in the middle of drilling the well the timing nonetheless spooked investors.").

⁸⁸ "Apache Shares Plunge Following Scant Update on South American Oil Prospect," *Wall Street Journal*, December 2, 2019.

ignores that there was no new news about Alpine High announced on this date and news of Alpine High's disappointing performance was revealed *before* the Focus Period, so was not new at the time of Mr. Keenan's departure. The fact that Mr. Keenan was considered the "Godfather" of Alpine High was not new news. Instead, analysts and market commentators referred to Mr. Keenan as the "head of Worldwide Exploration," which is consistent with Mr. Keenan's departure sparking concern about the Suriname well, which was "highly anticipated" and in the middle of being drilled.⁸⁹ Moreover, as discussed in the Allen Report, when discussing Alpine High following the October 25 announcement, analysts and the media only *repeated* known facts about Alpine High, including the effect that weak commodity prices had on Alpine High's production, and there was no indication that there was any news regarding Alpine High's reserves or the mix of oil and wet gas vs. dry gas.⁹⁰ For example, analysts at RBC Capital Markets noted that Mr. Keenan was part of the team that discovered Alpine High and that Alpine High's results had not met expectations due to weak natural gas and NGL prices, all of which was known before October 25.⁹¹ Dr. Nye *cannot and has not cited to a single analyst* attributing the price decline on this date to any new news about Alpine High. Nor has Dr. Nye cited any new news about Alpine High that was released on this date.

58. Regarding Dr. Nye's sixth reason ("any assumptions regarding the reason(s) for Mr. Keenan's departure are premature given that fact discovery is ongoing"), the reason for Mr. Keenan's departure is irrelevant since there was no new news about Alpine High released on this date, the market commentary is essentially unanimous in *directly* attributing the stock price decline to Suriname speculation, and not a single analyst attributes the stock price decline to new news about Alpine High.

⁸⁹ Credit Suisse analyst report, dated October 31, 2019, Credit Suisse analyst report, dated October 25, 2019 and Morgan Stanley analyst report, dated October 30, 2019.

⁹⁰ See for example, Allen Report, ¶¶72-73.

⁹¹ RBC Capital Markets analyst report, dated October 25, 2019, ("Mr. Keenan was a major part of the team that discovered the Alpine High play that has been a significant investment for APA. However, we think the outcome of results from Alpine High have not met high expectations and due to weakening natural gas and NGL prices, we expect that APA could allocate activity away from Alpine high in favor of oilier targets in other parts of the Permian."). The effect of weak commodity prices on Alpine High was already known – as an example, on October 7, 2019, analysts at Cowen commented that "given particularly weak NGL pricing and gas pricing, it's likely that APA looks to redeploy capital away from Alpine High[.]" Cowen analyst report, dated October 7, 2019.

- E. For the March 16, 2020 alleged corrective disclosure, the Nye Reply Report fails to show *any* evidence of price impact from the alleged misrepresentations - the Nye Reply Report fails to identify any new information in the allegedly corrective *Seeking Alpha* article, creates confusion by now claiming an entirely different alleged corrective disclosure (a Susquehanna report) that does not even mention Alpine High, and although unnecessary to do an event study if there is no corrective event, incorrectly adjusts the event study statistics for the record-high volatility on this date**

59. The Nye Reply Report claims that the Allen Report “fails to demonstrate a lack of price impact” associated with the March 16, 2020 alleged corrective disclosure. Dr. Nye offers the following five justifications for his conclusion:

- i. the Allen Report did not consider the “full set of information released on March 16, 2020 that Plaintiffs allege was corrective (*i.e.*, the Susquehanna report),”
- ii. the Allen Report “fails to put forth an event study model that, in her opinion, is ‘applicable,’”
- iii. “applying ‘[t]he simplest way to resolve the issues associated with performing an event study over a period of heightened volatility’” yields a statistically significant price decline after the March 16, 2020 alleged corrective disclosure,
- iv. the Allen Report “has not identified any other information disclosed on March 16, 2020 that could explain” the statistically significant declines” after the March 16, 2020 alleged corrective disclosure, and
- v. the Allen Report “provides no reliable basis or authority to discredit Seeking Alpha as a source of value-relevant information to investors.”⁹²

However, all of Dr. Nye’s reasons are incorrect and/or misleading and Dr. Nye fails to show *any* evidence of price impact from the alleged misrepresentations. Dr. Nye fails to identify any new information in the allegedly corrective *Seeking Alpha* article, creates confusion by now claiming

⁹² Nye Reply Report, ¶52.

an entirely different alleged corrective disclosure (a Susquehanna analyst report that does not even mention Alpine High), and although unnecessary to do an event study if there is no corrective event, incorrectly adjusts the event study statistics for the record-high volatility on this date.

1. The Nye Reply Report fails to identify any new information in the allegedly corrective *Seeking Alpha* article and creates confusion and obfuscation by now claiming an entirely different alleged corrective disclosure in a Susquehanna analyst report that does *not* even mention Alpine High

60. Dr. Nye claims that the Allen Report did not consider the “full set of information released on March 16, 2020 that Plaintiffs allege was corrective (*i.e.*, the Susquehanna report).” However, Dr. Nye is wrong on both counts – the Complaint does not allege the Susquehanna report as corrective and the Allen Report did consider it in its analyses. The Complaint has an entire section devoted to two of the Focus Period alleged corrective disclosures entitled the “Truth Emerges.”⁹³ The Susquehanna report is not mentioned once in this section of the Complaint. The Allen Report *did* consider the Susquehanna analyst report in its analyses (see for example, Allen Report, ¶¶76-79), and I explained this in my deposition.⁹⁴

61. The Allen Report demonstrated that the March 16, 2020 *Seeking Alpha* article that Plaintiffs claim as an alleged corrective disclosure in their Complaint had no price impact.⁹⁵ In particular, the Allen Report showed that the *Seeking Alpha* article did not have any new news about Apache, let alone Alpine High, and that no analyst or news story mentioned the article, let alone tied it to any price drop.⁹⁶ Given that the *Seeking Alpha* article had no new corrective

⁹³ Complaint, Section V.

⁹⁴ Allen Deposition, 187:16-18.

⁹⁵ See for example, Allen Report, ¶¶75-96.

⁹⁶ The lack of analyst reports and news stories mentioning the Seeking Alpha article after this date is consistent with the lack of price impact and demonstrates that the Seeking Alpha article was not important to the market’s valuation of Apache. This is consistent with recent court decisions that have found that a lack of analyst commentary after an event, can suggest that the market did not “consider it to be significant” and thus provide evidence of no price impact. See, for example, *Ramirez v. Exxon Mobil Corp.*, Civil Action 3:16-CV-03111-K (N.D. Tex. August 21, 2023), p. 40. See also, *Arkansas Teacher Retirement System v. Goldman Sachs Group, Inc.*, No. 22-484, 2023 WL 5112157 (2d Cir. August 10, 2023), pp. 68-69.

information, in an efficient market it is not evidence of price impact.⁹⁷ Moreover, contrary to Plaintiffs’ theory that Alpine High was “too heavy on unprofitable ‘dry’ gas,” the *Seeking Alpha* article described Alpine High as “wet-gas rich.”⁹⁸ Dr. Nye has no evidence refuting the Allen Report’s analyses regarding *Seeking Alpha*.

62. Instead, Dr. Nye disingenuously now claims the Susquehanna analyst report issued on March 16, 2020, which downgraded Apache (along with other E&P companies), is the alleged corrective disclosure.⁹⁹ The Complaint, in its “Truth Emerges” section, which focuses on the last two alleged corrective disclosures in the Focus Period, states that the “full extent of Defendants’ fraud was revealed on March 16, 2020, when *Seeking Alpha* published an article pre-market describing how Alpine High had left Apache hobbled and particularly challenged amongst its E&P peers.”¹⁰⁰ The Complaint *does not* mention the Susquehanna report in describing the alleged revelation of the “full extent of Defendant’s fraud” or in this section at all. The only mention of the Susquehanna report in Plaintiffs’ 141-page Complaint is in a different section where it devotes an entire paragraph to the *Seeking Alpha* article, claiming that it “revealed” that “Apache was particularly challenged amongst its E&P peers,” and then just notes “Susquehanna Financial Group downgraded Apache shares, highlighting a lack of ‘balance sheet flexibility’ and noting Apache’s ‘net leverage exceeding 3.0x by the end of 2021.’”¹⁰¹ Moreover, the Complaint specifically characterizes March 16, 2020 as “**the** March 16, 2020 partial corrective disclosure,” implying that there was a singular allegedly corrective event, *i.e.*, the *Seeking Alpha* article, on this date.¹⁰²

63. Tellingly, the Complaint claims that the March 16, 2020 alleged corrective disclosure revealed Apache’s “severely constrained financial position relative to its competitors.” However, the Susquehanna report did not make such a revelation. In particular, Dr. Nye fails to mention the Susquehanna report is not just about Apache, but an industry report discussing

⁹⁷ Note this principle is echoed in the court decision in *Exxon* that found that an analyst report that did not “offer any new corrective information to the market” was not evidence of price impact. *Ramirez v. Exxon Mobil Corp.*, Civil Action 3:16-CV-03111-K (N.D. Tex. August 21, 2023), p. 51.

⁹⁸ “The Oil Price Crash Puts Apache Corporation In A Tough Spot,” *Seeking Alpha*, March 16, 2020.

⁹⁹ Nye Reply Report, ¶¶45, 47.

¹⁰⁰ Complaint, ¶111.

¹⁰¹ Complaint, ¶315.

¹⁰² Complaint, ¶316, emphasis added.

several companies in the E&P industry, including Apache, and that the report does not just downgrade Apache, but also downgrades two other E&P companies, Noble Energy, Inc. and Occidental Petroleum Corporation.¹⁰³ Moreover, the reason for the downgrade of all three companies is *exactly the same* – the “large uncertainty in the magnitude and timing of a recovery in oil prices.”¹⁰⁴

With a large uncertainty in the magnitude and timing of a recovery in oil prices, balance sheet flexibility is a main parameter in our stock selection process with factors such as inventory depth, capital intensity, and valuation still playing an important role in the calculus. Based on this parameter, we are downgrading APA, NBL and OXY to Neutral from Positive. These are three previously Positive-rated names where we now see net leverage exceeding 3.0x by the end of 2021 (see Exhibit 1). [Susquehanna, 3/16/20]

Thus, the Susquehanna Report, which is an industry report covering several E&P companies, downgraded Apache, along with other E&P companies, due to the uncertainty in oil prices in the wake of the COVID-19 pandemic and did not reveal Apache’s “severely constrained financial position relative to its competitors.”

64. Moreover, the Susquehanna report does *not* have any new news about Alpine High and tellingly does not even *mention* Alpine High. The focus of the report is the “large uncertainty in the magnitude and timing of a recovery in oil prices” in the wake of the Covid pandemic.¹⁰⁵ Thus, the Susquehanna report, which does not have information about Alpine High, let alone any new or corrective information, cannot be evidence of price impact of the alleged misrepresentations regarding Alpine High. In other words, in an efficient market, given that the Susquehanna report had no new corrective information, it is not evidence of price impact. (This is consistent with the recent court decision in *Exxon* that found that an analyst report that did not “offer any new corrective information to the market” was not evidence of price impact.¹⁰⁶)

65. Dr. Nye claims the Allen Report ignores the Susquehanna analyst report – this is *flatly* untrue.¹⁰⁷ The Allen Report did consider the Susquehanna analyst report in its analyses,

¹⁰³ Susquehanna analyst report, dated March 16, 2020, (“With the lower price assumptions, we are moving to a neutral rating on APA, NBL and OXY,”).

¹⁰⁴ Susquehanna analyst report, dated March 16, 2020.

¹⁰⁵ Susquehanna analyst report, dated March 16, 2020.

¹⁰⁶ *Ramirez v. Exxon Mobil Corp.*, Civil Action 3:16-CV-03111-K (N.D. Tex. August 21, 2023), p. 51.

¹⁰⁷ Nye Reply Report, ¶47.

and I made that clear in my deposition (which Dr. Nye considered and cited in the Nye Reply Report).¹⁰⁸ For example, in my report and deposition I noted:

No analyst or news story discussed or even mentioned the *Seeking Alpha* article following the March 16 alleged corrective disclosure, let alone tied it to any price drop in Apache's stock price. [Allen Report, ¶77]

When I say there's not one analyst that mentions Seeking Alpha and that there's no information, I am referencing that [Susquehanna report]. [Allen Deposition, 187:16-18]

66. Dr. Nye claims the Allen Report “has not identified any other information disclosed on March 16, 2020 that could explain” the statistically significant price decline, and “provides no reliable basis or authority to discredit *Seeking Alpha* as a source of value-relevant information to investors.”¹⁰⁹ Dr. Nye is mistaken. It is Dr. Nye himself who has failed to identify any new information about Alpine High on March 16, 2020, and has thus provided *zero* evidence that the price decline (if any) on March 16, 2020 was due to the market learning any new information about Alpine High.¹¹⁰ The Allen Report demonstrated that there was no new information about Alpine High disclosed on this day (let alone any allegedly corrective information) and thus that there was no need for an event study on this date. Nevertheless, the Allen Report showed that what appeared to be a significant price decline after the March 16, 2020 alleged corrective disclosure was consistent with the increased market volatility at the beginning of the COVID-19 pandemic. As explained in the Allen Report, and unrefuted by Dr. Nye, the market volatility, as measured by the VIX (a commonly used measure of the stock market's expectation of volatility based on S&P 500 index options),¹¹¹ reached an all-time high on March 16, 2020.¹¹² Moreover, Dr. Nye's claim that *Seeking Alpha* is a “source of value-

¹⁰⁸ See for example, Allen Deposition, 187:16-18 and Allen Report, ¶77.

¹⁰⁹ Nye Reply Report, ¶¶51-52.

¹¹⁰ Nye Reply Report, Section VIII.

¹¹¹ “Cboe VIX Index,” *Cboe*, accessed at: https://www.cboe.com/tradable_products/vix/.

¹¹² See for example, “How does this bear market compare,” *USA Today*, March 18, 2020, (“In recent days the VIX has climbed to levels not even seen during the financial crisis in October 2008, signaling the continued uncertainty brought on by the coronavirus pandemic.”) and “Traders Bet on Falling ‘Fear Gauge’,” *Dow Jones Institutional News*, March 17, 2020, (“The Cboe Volatility Index, or VIX, closed at its highest level in history Monday when U.S. shares recorded the steepest decline since the Black Monday stock-market crash of 1987 [...] The VIX climbed to 82.69 Monday, topping its high of about 80 in 2008.”).

See also, Allen Report, ¶¶88-95.

relevant information” is irrelevant since, as shown in the Allen Report, the *Seeking Alpha* article had no new news about Apache or Alpine High.

67. In addition, Dr. Nye completely ignores the Allen Report’s analysis showing that the market was already aware and had analyzed Apache’s debt before both the *Seeking Alpha* article and the Susquehanna analyst report were issued.¹¹³ Dr. Nye claims that “consistent with the *Seeking Alpha* article,” the Susquehanna analyst report estimated that Apache’s “Net Debt/EBITDA” ratio for 2020 and 2021 would be “the highest among the ‘International/Diversified E&Ps,’” and Plaintiffs claim that the *Seeking Alpha* article revealed that Apache did not have a “strong balance sheet” with “high levels of debt” of over \$8 billion in 2019, and a “lofty debt-to-equity ratio of almost 250% - the highest among all large-cap independent oil producers.”¹¹⁴ However, the details mentioned by Plaintiffs about Apache’s debt and equity were not new but released to the market as part of Apache’s 4Q19 and FY2019 financial results on February 26, 2020.¹¹⁵ (Note there was a statistically significant *increase* in Apache’s stock price after this announcement both according to Dr. Nye’s event study model and the alternative event study model.) Many analysts had examined and discussed Apache’s and other E&P companies’ debt before the *Seeking Alpha* article and Susquehanna analyst report were published. See, for example, a Cowen analyst report on the E&P industry on March 11, 2020 that listed the debt amount and maturity terms of Apache and other E&P companies¹¹⁶ or a JP Morgan analyst report on March 2, 2020 that explicitly listed its calculation of Apache’s debt-to-equity ratio as of 2019.¹¹⁷

68. Contrary to Plaintiffs’ and Dr. Nye’s claim that there was any corrective information released regarding the alleged misrepresentations on this day, both the *Seeking Alpha* article and the Susquehanna report stated that the primary reason for Apache’s financial

¹¹³ Allen Report, ¶¶75-87.

¹¹⁴ Complaint, ¶315 and Nye Reply Report, ¶45.

¹¹⁵ “Apache Corporation Announces Fourth-Quarter and Full-Year 2019 Financial and Operational Results,” *Apache Press Release*, February 26, 2020.

¹¹⁶ Cowen analyst report on E&P industry, dated March 11, 2020. See also, Scotiabank analyst report on Apache, dated February 28, 2020.

¹¹⁷ JP Morgan analyst report on Apache, dated March 2, 2020.

stress was plummeting commodity prices caused by the Covid pandemic.¹¹⁸ The title of the *Seeking Alpha* article “The Oil Crash Puts Apache Corporation In A Tough Spot” highlights that the article is about the collapse in oil prices rather than any new information about Alpine High.¹¹⁹ Similarly, the Susquehanna analyst report noted in its “Highlights” that “we are lowering price targets across the coverage universe,” because of oil prices, “which are now based on a \$40/bbl WTI assumption in 2021.”¹²⁰

2. Although unnecessary to do an event study, the Nye Reply Report *incorrectly* adjusts for the record-high market volatility on this date; if Dr. Nye had properly followed the methodology in the paper he relies upon, he would find that there is *no* statistically significant reaction to the March 16, 2020 alleged corrective disclosure

69. Dr. Nye claims that the Allen Report “fails to put forth an event study model that, in her opinion, is ‘applicable’” to the March 16, 2020 date and “applying ‘[t]he simplest way to resolve the issues associated with performing an event study over a period of heightened volatility’” yields a statistically significant decline after the March 16, 2020 alleged corrective disclosure.¹²¹ Dr. Nye is incorrect. The Allen Report showed that given that the March 16, 2020 alleged corrective disclosure revealed no new information about Alpine High, an event study would not be necessary and therefore an adjustment to the event study model to account for increased market volatility would also not be necessary.¹²² Moreover, Dr. Nye’s “simple way to resolve the issues” associated with the record-high market volatility on March 16 is incorrect.¹²³ Dr. Nye’s “simple” adjustment is clearly not fully accounting for the record-high market volatility on this day and demonstrates that a full adjustment would yield no statistically significant price reaction. Further, applying any of the three other methods outlined in the paper Dr. Nye relies upon similarly yields that there is no statistically significant price reaction after the March 16, 2020 alleged corrective disclosure.

¹¹⁸ “The Oil Price Crash Puts Apache Corporation In A Tough Spot,” *Seeking Alpha*, March 16, 2020 and Susquehanna analyst report, dated March 16, 2020.

¹¹⁹ “The Oil Price Crash Puts Apache Corporation In A Tough Spot,” *Seeking Alpha*, March 16, 2020 and Susquehanna analyst report, dated March 16, 2020.

¹²⁰ Susquehanna analyst report, dated March 16, 2020.

¹²¹ Nye Reply Report, ¶¶48, 52.

¹²² Allen Report, ¶¶88-95.

¹²³ Nye Reply Report, ¶48.

70. Dr. Nye attempts to show that the stock price decline on March 16 could not be explained by the record-high market volatility by incorrectly applying one of the methodologies described in a paper by former NERA colleagues regarding event studies in periods of high volatility (“NERA paper”). In particular, Dr. Nye claims to apply one method from the NERA paper that proposes “several ways to increase the accuracy of an event study in periods of increased market volatility.”¹²⁴ However, Dr. Nye chooses to only use one of the four methods proposed in the paper and his application of this one method is incorrect.

71. The Allen Report showed that in the days around the March 16, 2020 alleged corrective disclosure the market volatility increased substantially in response to the beginning of the COVID-19 pandemic.¹²⁵ In fact, as shown in the Allen Report, on March 16, 2020 the market volatility, as measured by the VIX, reached an *all-time high*.¹²⁶ Dr. Nye does not dispute this fact. As discussed in the Allen Report, although an event study is not necessary on this date, if one were to do an event study on this date, one would have to adjust for the heightened volatility. This is because a test of the statistical significance of a price reaction is based on the range of normal expected daily variation in stock prices. When testing the statistical significance of the price reaction on a certain date, both Dr. Nye’s event study model (from his initial report) and the alternative event study model use an estimation period of a year before this date, thereby using the stock price volatility in the year before this date to estimate the range of normal expected daily variation in Apache’s stock on this date. However, due to the heightened market volatility, price movements of Apache’s stock around March 16, 2020 were substantially different from what would be expected given the company’s stock price movements in the prior year, when market volatility was much lower. By not accounting for increased market volatility,

¹²⁴ Jovanovic, Branko, and Edward Fox, *NERA Economic Consulting*, “Testing for Materiality in Volatile Market,” January 12, 2010.

¹²⁵ Allen Report, ¶¶88-93.

¹²⁶ “How does this bear market compare,” *USA Today*, March 18, 2020, (“In recent days the VIX has climbed to levels not even seen during the financial crisis in October 2008, signaling the continued uncertainty brought on by the coronavirus pandemic.”) and “Traders Bet on Falling ‘Fear Gauge’,” *Dow Jones Institutional News*, March 17, 2020, (“The Cboe Volatility Index, or VIX, closed at its highest level in history Monday when U.S. shares recorded the steepest decline since the Black Monday stock-market crash of 1987 [...] The VIX climbed to 82.69 Monday, topping its high of about 80 in 2008.”)

In addition, on March 16, 2020, trading was halted due to increased volatility for the first fifteen minutes of the trading day. See for example, “One year ago stocks dropped 12% in a single day. What investors have learned since then,” *CNBC*, March 16, 2021 and “Trading Halted Again as Coronavirus Wears on Wall Street,” *U.S. News*, March 16, 2020.

both Dr. Nye's event study model and the alternative event study model appear to find statistically significant reactions around this time period even when there is no new company-specific news.¹²⁷

72. In an attempt to control for this increase in market volatility around March 16, Dr. Nye chooses the method from the NERA paper that proposes moving the control period, the period used to calculate the expected returns and expected volatility, closer to the event being tested in order to use a control period that has "similar" volatility to the event.¹²⁸

73. Dr. Nye's initial event study from his first report used a control period of one year before March 16.¹²⁹ The market volatility, as measured by the VIX, was 83% on March 16, five times larger than the 17% average market volatility during the one-year control period used in Dr. Nye's initial event study. In the Nye Reply Report, Dr. Nye uses five different control periods in an attempt to control for the increased market volatility around March 16.¹³⁰ However, the average market volatility during all five of Dr. Nye's alternative control periods is still substantially below the record high market volatility on March 16. The table below shows the elevated market volatility on March 16 of 83% (as measured by the VIX) and the substantially lower average market volatility for each of the control periods used by Dr. Nye in both of his reports. The table also shows the associated p-values for the price reaction on March 16 under each model.¹³¹ As discussed above, the p-value is the chance that a price reaction of the same magnitude would be observed given the range of normal stock price volatility.¹³² Hence, a p-value greater than 5% would mean that the price reaction is not statistically significant at the commonly used 5% level. As shown in the table, as the control period shortens, the average VIX in the control period gets closer to but still nowhere near the VIX on March 16, 2020. Moreover, as the control period shortens, the p-value of the March 16 price reaction increases. Tellingly, the

¹²⁷ See for example, Allen Report, ¶¶88-95.

¹²⁸ Jovanovic, Branko, and Edward Fox, *NERA Economic Consulting*, "Testing for Materiality in Volatile Market," January 12, 2010.

¹²⁹ Nye Report, Exhibit 11A.

¹³⁰ All five control periods start on March 2, 2020 and last either two, three, four, five or six months.

¹³¹ Dr. Nye reports the confidence levels of Apache's excess returns, which as discussed above, are not the same as being confident that the given event had an impact.

¹³² See, for example, Freedman, David A., and David H. Kaye, "Reference Guide on Statistics," *Reference Manual on Scientific Evidence* (Washington, D.C.: Federal Judicial Center, 3rd ed., 2011) p. 250.

price reaction after March 16 using the control period with the highest average market volatility and the alternative event study model was not statistically significant.¹³³ Thus, Dr. Nye's "simple" adjustment is clearly not fully accounting for the record-high market volatility on March 16, 2020 and demonstrates that a full adjustment would yield no statistically significant price reaction.

Nye Control Periods for March 16, 2020 Alleged Corrective Disclosure					
Control Period	Control Period Dates	Market Volatility		Statistical Test (p-value)	
		During Control Period ¹	On 3/16/20	Nye Model	Alternative Model
<i>Nye Report (Initial)</i>					
1 Year Prior to Event	3/14/19 - 3/13/20	17%	83%	0.0% *	0.0% *
<i>Nye Reply Report</i>					
Start March 2020 - 6 Months	3/2/20 - 8/31/20	35%	83%	0.1% *	0.4% *
Start March 2020 - 5 Months	3/2/20 - 7/31/20	37%	83%	0.3% *	0.7% *
Start March 2020 - 4 Months	3/2/20 - 6/30/20	40%	83%	0.3% *	0.8% *
Start March 2020 - 3 Months	3/2/20 - 5/29/20	43%	83%	0.7% *	1.9% *
Start March 2020 - 2 Months	3/2/20 - 4/30/20	48%	83%	2.0% *	5.3%
Notes and Sources:					
Data from Bloomberg L.P. and Dr. Nye's Turnover. "*" indicates that the price reaction is statistically significant at the 5% level. CBOE Volatility Index (VIX) is used to measure market volatility.					
¹ Calculated as the average volatility during the control period. Excludes event dates Dr. Nye excluded from his control period.					

74. Dr. Nye completely ignores the three other methods mentioned in the NERA paper to control for increased market volatility. Contrary to the method Dr. Nye applies, the other three volatility adjustment methods do actually control for the market volatility on the alleged corrective disclosure date itself, thus more accurately controlling for the dramatic spike in market volatility on the alleged corrective disclosure date. Applying any of these three other methods results in *no* statistically significant price reaction following the March 16, 2020 alleged corrective disclosure. All three methods use the market's expectation of the Company-specific volatility on the event date to measure the price reaction's statistical significance. The first

¹³³ Note Dr. Nye claims that the alternative event study in the Allen Report does not have "higher explanatory power." However, Dr. Nye's own table in the Nye Reply Report shows that the alternative event study model's average adjusted R-squared of all dates during the Focus Period, was higher than Dr. Nye's event study model's average adjusted R-squared. See, Nye Reply Report, ¶77. Moreover, in a regression of Apache's daily returns over the Focus Period (excluding the COVID-19 period of volatility), the adjusted R-squared was higher using the industry and market indices the alternative event study model used than using the industry and market indices Dr. Nye's event study model used.

method proxies the Company-specific volatility using the implied volatility of the market index on the day before the event and the relationship between the Company and the market index during the control period. The second method proxies the Company-specific volatility using the implied volatility of the market index on the event date and the relationship between the implied volatility of the Company and the implied volatility of the market during the control period. The third method explicitly models the Company-specific volatility using a generalized autoregressive conditional heteroskedasticity (“GARCH”) model, which assumes that the Company’s excess return depends on the implied volatility of the market index.¹³⁴

75. In sum, the Allen Report showed that in the days around the March 16, 2020 alleged corrective disclosure the market volatility increased substantially in response to the beginning of the COVID-19 pandemic. Dr. Nye attempts to “resolve the issues” associated with the record-high market volatility on March 16 through a “simple” adjustment. However, Dr. Nye’s “simple” adjustment is clearly not fully accounting for the record-high market volatility on this day and demonstrates that a full adjustment would yield no statistically significant price reaction. Further, applying any of the three other methods outlined in the paper Dr. Nye relies upon similarly yields that there is no statistically significant price reaction after the March 16, 2020 alleged corrective disclosure.

F. The Nye Reply Report’s claims that the Allen Report’s big picture analysis is irrelevant are disingenuous and misleading - contrary to Plaintiffs’ allegation that “when the truth regarding Defendant’s fraud emerged,” Apache’s stock price was “decimated” and dropped by “93% from its high,” Apache’s stock price moved in-line with the E&P industry during the Focus Period

76. Dr. Nye claims that the Allen Report’s big picture analysis is irrelevant because the fact that Apache’s stock price moved in-line with the E&P industry “is entirely expected in an efficient market” and “the notion that, during the Focus Period, Apache’s stock price was suddenly more ‘in-line with the E&P industry,’ is nonsense.”¹³⁵ However, Dr. Nye’s claims are disingenuous and misleading. The Allen Report never claimed that Apache’s stock price was

¹³⁴ To implement these three methods, the VIX Index is used as the measure of the implied volatility of the market. The results are similar using the specifications in Dr. Nye’s event study model or the alternative event study model.

¹³⁵ Nye Reply Report, ¶56.

“suddenly more in-line” with the industry during the Focus Period. Instead, the Allen Report was responding to Plaintiffs’ claim that “when the truth regarding Defendants’ fraud emerged [...] Apache’s stock price was decimated” and had “an astonishing decline of 93% from its high during the Class Period.”¹³⁶ The Allen Report showed that, contrary to Plaintiffs’ claim that when the truth “gradually became apparent to the market, the price of Apache common stock fell precipitously,” as the alleged inflation “dissipated,”¹³⁷ there was no price reaction from any corrective information and no change in the market’s expectations about Alpine High’s reserves or the mix of oil and wet gas vs. dry gas during the Focus Period.¹³⁸ Instead, Apache’s stock moved in-line with the E&P industry during the Focus Period.¹³⁹

77. Dr. Nye claims that the Allen Report’s contention that Apache’s stock price decline was driven by changes in the E&P industry is contradicted by the Company’s own analysis. However, this is flatly untrue. Dr. Nye’s only support for this claim is an internal Company presentation from early 2020.¹⁴⁰ However, the internal presentation, including the chart from the presentation that Dr. Nye cites and includes in his report, explicitly notes that for the first half of the Focus Period, Apache’s stock moved with its peers, and for the second half, Apache’s underperformance was due to the decline in NGL and gas pricing¹⁴¹ – exactly the point the Allen Report made.¹⁴² The Allen Report further showed that for example, the stock price of Cimarex, another E&P company described by analysts as a “solid proxy for investor sentiment/concern on Waha pricing,” and was heavily exposed to Waha Hub natural gas prices and NGL prices, declined in 2019 as a result of weak commodity pricing.¹⁴³

78. Moreover, in the Allen Report I also showed that when commodity prices recovered after the Focus Period ended, Apache resumed its previously curtailed production and

¹³⁶ Complaint, ¶2.

¹³⁷ Complaint, ¶301.

¹³⁸ See for example, Allen Report, ¶¶97-102.

¹³⁹ Allen Report, ¶¶103-106.

¹⁴⁰ Nye Reply Report, ¶¶57-59.

¹⁴¹ APACHE_00000751-85 at 67.

¹⁴² See for example, Allen Report ¶¶107-119. See also, Piper Sandler analyst report, dated June 27, 2019 (“Over the last 12 months, we see two primary trends having an outsized impact on APA relative to the broader group: the collapse in Waha pricing, and Suriname expectations.”).

¹⁴³ Piper Sandler analyst report, dated June 27, 2019 and Allen Report, ¶119.

drilling at Alpine High.¹⁴⁴ This is consistent with the Allen Report's big picture analysis and strong evidence that there is no price impact from the alleged misrepresentations. Dr. Nye has no response to this analysis.

A handwritten signature in black ink, appearing to read "Lucy P. Allen", written in a cursive style.

Lucy P. Allen

¹⁴⁴ Allen Report, ¶¶120-125.

Exhibit 5

BUSINESS//ENERGY

How one old-school scientist found the biggest oil field this year

By **David Hunn**

Updated Jan 6, 2017 10:47 a.m.



SALE 99¢



An Apache Corp. drilling rig sits north of the Davis Mountains in Balmorhea. The company recently announced the discovery of an estimated 15 billion barrels of oil and gas in the area and plans to drill and use hydraulic fracturing on the 350,000 acres surrounding the town. (Michael Ciaglo / Houston Chronicle)

Michael Ciaglo/Staff

SAN ANTONIO - The dirty dishes were waiting for Steve Keenan on a cool weekend morning in March. He had just finished breakfast - two eggs over easy, severely toasted bread, and crisp bacon - while his wife sat nearby, reading the Sunday paper. It was only 9 a.m. The phone rang.

Keenan didn't recognize the number, but answered anyway, fearful something had gone wrong with a drilling rig or fracking crew that he oversaw as part of his job at the Houston oil company EOG Resources. A raspy voice barked out a name he didn't recognize: Steve Farris, chairman and chief executive of Apache Corp.

"How did you get this number?" Keenan asked.

ADVERTISEMENT

Article continues below this ad

Farris didn't answer. Instead, he got right to his point: Apache urgently needed to find oil and Keenan knew how to do it. Quit your job, Farris told him, come work for Apache and make the next big discovery. At the very least, Farris pleaded, come to Houston to talk about it.

Keenan was unconvinced.

"You're being unrealistic," Keenan responded. "Thinking I could just come there and find a big field. Do you know how long it takes to do that?"

Missing out

The year was 2014, and the oil boom was on. All around, exploration and production companies - including EOG - were cashing in. Apache wasn't.

ADVERTISEMENT

Article continues below this ad

Over a 60-year history, Apache had become one of the largest oil companies in Houston, discovering fields and drilling wells from Wyoming to Australia. But as the industry entered the 21st century, Apache had lost its appetite for risk, buying up cast-off properties from large companies and acquiring smaller firms squeezing oil from established fields.

That strategy worked for while, doubling revenues between 2004 and 2010, but as the shale boom got underway, Apache found itself on the outside looking in. Production in its conventional holdings had stalled. It had not made a significant oil discovery in more than a decade and controlled precious little prime land in North American shale basins.

Apache's stock plunged by more than 30 percent between 2010 and 2014, even as the rest of the industry boomed. Farris knew Apache had to get back its swagger if it was to reverse its fortunes. It had to return to the business of risk, and it had to make a headline-grabbing find. Increasingly, his attention turned to Keenan.

"We needed a star," said Farris. "And he was a star."

Different ideas

Keenan, 61, is small and wiry, with unruly eyebrows, big round cheeks and a crooked, mischievous grin. He works 60 hour weeks, with bags under his eyes to prove it. He rolls button-down shirt sleeves up over his elbows, wears baseball caps to the office and works out at the karate studio in his home every other night. He's a black belt.

Keenan grew up in Philadelphia, the son of a welder who was the son of a welder. He went to LaSalle University in Pennsylvania, then to Bowling Green State University in Ohio, where his master's thesis in geophysics focused on removing seismic "noise," or errant readings, using mathematical algorithms.

Just as he completed his master's in 1978, the oil and gas industry was expanding seismic testing to find new reservoirs. "I got numerous, numerous offers," Keenan recalled.

Over the next three decades, Keenan worked from offshore California to Europe's stormy North Sea, earning a reputation as a maverick who ignored conventional wisdom, did his own research and found oil where no one thought it was. Keenan helped identify billion-barrel fields at Milne Point, in Alaska, and at Alba, off the coast of Scotland, as well as 100-million-barrel fields at Neptune and Trident in the Gulf of Mexico.

"If you want to find a new play, you're going to have to have a different idea," Keenan said. "And it's going to upset some people."

Keenan had a different idea in 2007, as he and his team at EOG focused on the Eagle Ford Shale in South Texas. The Eagle Ford cuts into the earth at an angle, bending down to the south and east. When layers of oil-soaked rock dip too low in the earth, they heat up and cook oil into natural gas.

Keenan followed the formation toward the surface, where the earth was cooler and he could fracture rock to get at the oil.

The next year, Keenan and his team drilled one of the first horizontal oil wells in the Eagle Ford, proving they could get oil out of the play. Eagle Ford's crude reserves were later estimated at 5.2 billion barrels.

EOG, far ahead of the curve, leased more than 600,000 acres with little competition, said Gary Carson, one of the primary landmen lining up property in the Eagle Ford. The company spent just a few hundred dollars per acre, a fraction of the \$35,000 companies paid a few years later. "It was an amazing episode, the most amazing episode of my professional career as a lawyer and landman," Carson said.

By the end of 2013, however, Keenan, felt stuck in his job. He couldn't imagine an accomplishment equal to Eagle Ford. At 58, he started talking about retirement. "What else was I going to do?" he said. "I really couldn't top that, as far as I could tell."

Then one Sunday morning, the phone rang.

Breakfast: the poach

"Who are you? What do you want?" Keenan asked the Apache CEO. He was suspicious, then skeptical. He didn't think Apache could change.

But Farris wouldn't get off the phone. And Keenan yearned to hunt again for the big find. He agreed to meet with Farris, who was about to retire, and the incoming CEO, John Christmann.

Apache hired Keenan in April 2014, and Keenan opened a San Antonio office. Colleagues from EOG, including geologist Sara Reilly, 37, soon joined him. "I wanted to work for Steve again," she said.

Keenan's team started slowly, helping to improve existing wells and prospects, and operating other wells in the western half of West Texas' Permian Basin, called the Delaware. Keenan and chief geologist Roberto Alaniz, 67, a long-time colleague, had never worked in the Permian. But they liked the Delaware, with its deep underground basin that trapped organic material - the building blocks of oil - as seas rose and fell millions of years ago.

Keenan and Alaniz became intrigued by a section along a southern strip of Reeves County. The rest of the industry didn't think much of it. More than 100 wells had failed before Apache arrived, drilled by storied explorers like Oklahoma's Chesapeake Energy and Houston's Petrohawk Energy.

Petrohawk once owned half the oil rights in the area, said Floyd Wilson, the company's former CEO and current chief executive of Halcon Resources, another Houston oil company. But it didn't know quite what it had. "We didn't even have a clue those plays were there," Wilson said.

The first zig

Oil companies largely avoided southern Reeves County. Most believed rock in that part of the Delaware was too deep and too hot to hold oil. In addition, as seas filled the basin millions of years ago, they deposited clay, which doesn't fracture well to let out oil and gas.

Keenan, meanwhile, was feeling the pressure of high expectations. "I knew I had the lifespan of a monarch butterfly," he said. "If we didn't find something soon, we'd just be swatted and kicked out."

In the fall of 2014, Keenan was looking at old, two-dimensional seismic surveys purchased from a data warehouse for next-to-nothing. In the 1970s and '80s, companies had mapped much of the Delaware, but the technology was two-dimensional, creating graphs that look like electrocardiograms. Today, with seismic imaging producing 3-D color maps of underground formations, many geologists consider 2-D surveys nearly worthless.

But Keenan saw something in the graph's peaks and valleys. Just as the lines hit the southern strip of Reeves County, they suddenly rose like an aberrant heartbeat. One section of the formation didn't seem deep at all.

Keenan's team bought all the 2-D seismic it could find - "I wanted every line I could get," Keenan said - and turned it into a map. The map showed southern Reeves was probably a shelf, above the deep Delaware Basin center, and cool enough for oil to collect.

The team needed to drill test wells, each costing \$8 million or more, but the timing couldn't have been worse. Oil prices were tanking. Companies were cutting jobs by the tens of thousands. And Keenan was asking Apache for money to pursue a hunch.

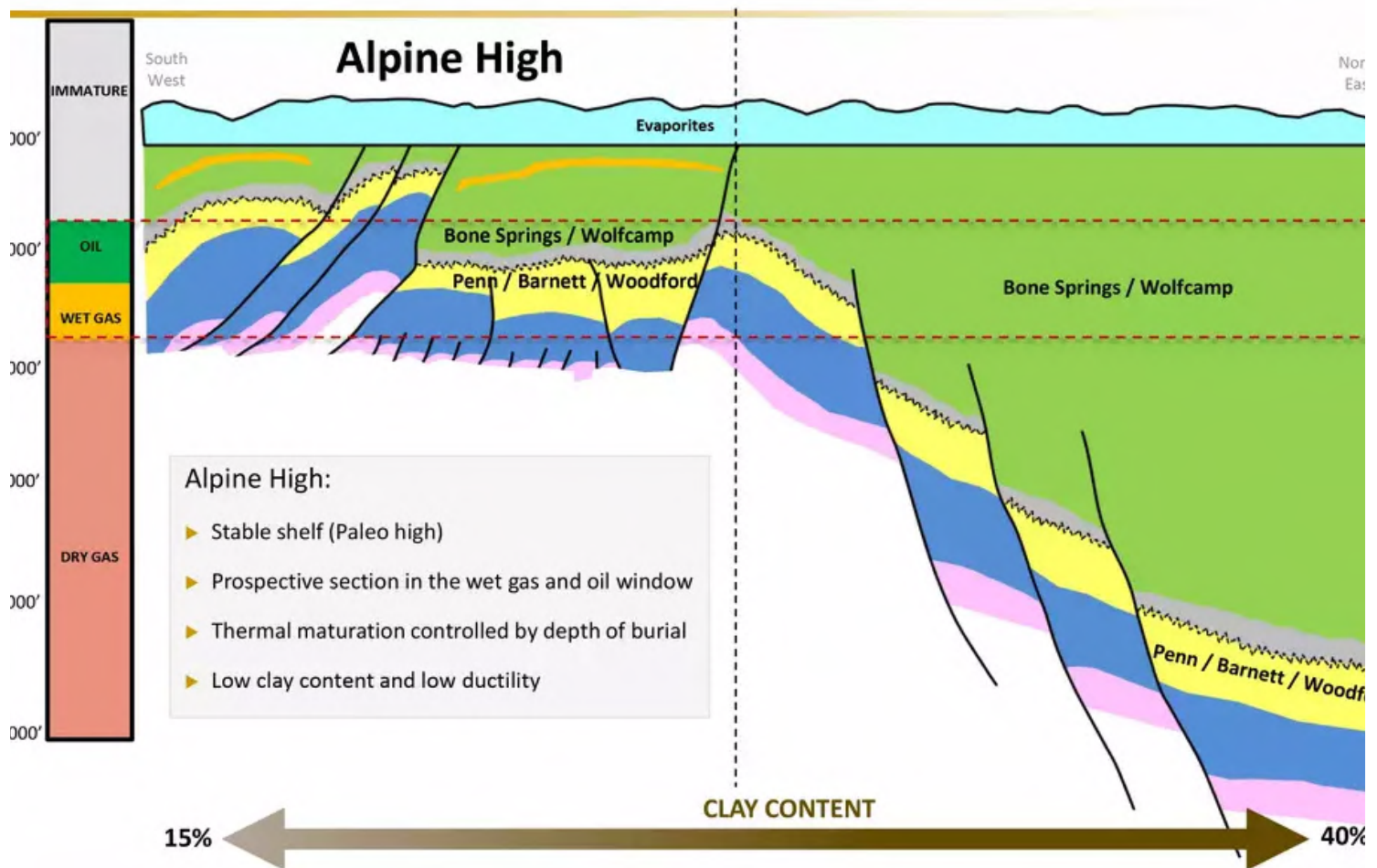
"Imagine how that goes over," Keenan said. "You're taking a significant amount of your precious budget and putting it on a wild goose chase that no one believes in but you."

'It started adding up'

Apache approved the test wells, and, in the spring of 2015, began drilling. Some wells produced oil, others didn't. But each told Keenan more about the size and shape of the field. The company named it Alpine High.

After seven test wells and several weeks of drilling, however, Alpine High was still just a theory. The project's success had come down to a single well, Spanish Trail 55 1H. If it failed to strike oil, it meant Keenan and his team had misunderstood the geology - and cost Apache millions of dollars, just when it needed the money most.

GEOLOGY OF THE SOUTHERN DELAWARE BASIN



In November 2015, the state approved the drilling of Spanish Trail, off County Road 318 on the edge of a lake outside the sleepy town of Balmorhea. Apache broke

ground in January, drilling 10,767 feet below the surface, then turning 4,326 feet horizontally, according to state records.

One night a month later, a field report arrived in the inbox of Tim Samson, a 34-year-old geologist. Samson looked, then looked again. Spanish Trail had hit clear, sweet crude in a reservoir 2,000 feet thick more than a mile below the surface.

Apache found something else there, too - something Keenan won't talk about, for fear of revealing the secret of Alpine High. But, whatever it was, it told him every well in the play would strike oil.

In July, two of Keenan's top managers met him in his office. On his desk, Keenan had a tool called a planimeter, which is used to measure area, part of the equation to estimate oil and gas reserves.

Chief reservoir engineer Chester Pieprzica, 39, and exploration manager Eric Vosburgh, 44, began gathering data: fluid properties, underground pressures, rock densities. Keenan called out numbers. Vosburgh and Pieprzica punched them into calculators, counting oil and gas volumes in the sprawling basin, section by section.

Five trillion cubic feet of gas. Then 25. Then 75. One billion barrels of oil. Then two. Then 3.

"It just started adding up," Pieprzica said. "And you get down to the end, you total them all up, and it's like, wow."

The three stopped. Five seconds of silence felt like a minute. Then they began to laugh. They had found the equivalent of 15 billion barrels of oil.

Four bottles

Apache announced Alpine High in September. It spans 350,000 acres in southern Reeves County, which the company leased for \$1,300 an acre on average, far less than the \$30,000 companies pay in other parts of the Permian.

If the field lives up to its billing, it could catapult Apache back into the top of American independent oil producers.

"How important is it? I'd say very important," said Andrew McConn, an analyst at the energy research firm Wood Mackenzie.

But many analysts and competitors still doubt that Apache could find so much oil when so many others failed. They say Apache's estimate of extracting 13 percent of the oil and gas is too high, especially with no service companies or pipelines yet in the remote area.

"The trick is to make this commercial," said University of Texas professor Mark Shuster, a former Shell Oil executive. "Like a lot of these announcements, there's a flurry of excitement, then as people dig into it, reality sets in. How are they going to make it work?"

Keenan is used to that question. He lined up four small glass bottles of oil, each representing different layers under Alpine High. Other major fields could be represented by just one of the bottles, Keenan said, "but this play, we've got them all stacked on top of one another."

Recovery won't be easy, Keenan admits. Apache is experimenting with well placement and drilling. It will take another two years to get it right.

But for Keenan, Alpine High was the culmination of a lifetime looking for gas and oil - and a second life, all at once. He thought back to 2014, when retirement seemed

likely and a phone call broke the quiet of a Sunday morning.

Farris had caught Keenan at the right time. After breakfast. When Keenan was hungry, again, to find oil.

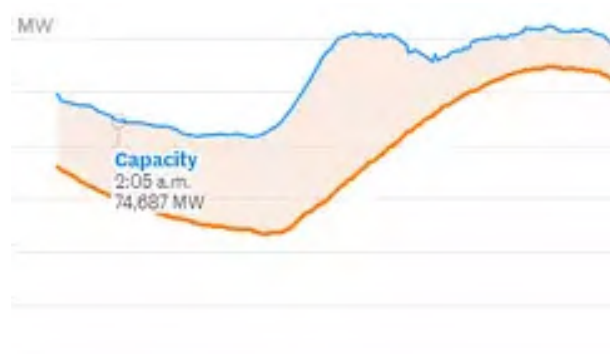
Dec 30, 2016 | Updated Jan 6, 2017 10:47 a.m.

By **David Hunn**



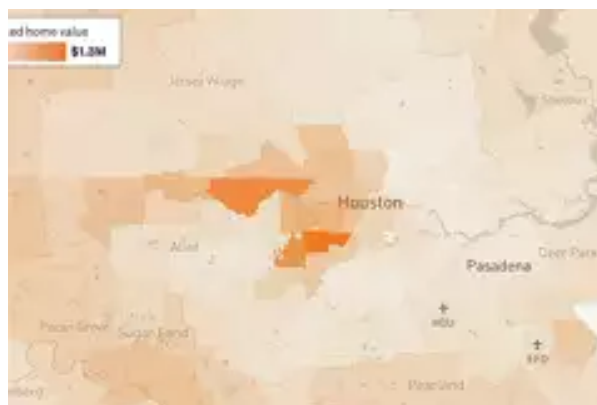
David Hunn came to the Houston Chronicle in June 2016. He has since written on bankruptcies and debt loads after the 2014 oil price crash, on the boom in the Permian Basin that followed, and at length on the discovery of Houston-based Apache Corp.'s Alpine High oil and gas field in the Permian's southern Delaware Basin. Hunn previously covered government spending for the St. Louis Post-Dispatch, including the \$380 million renovation of the Gateway Arch grounds, the five-institution tax-payer-funded Zoo-Museum District, and the \$1 billion plan to build a new football stadium on the Mississippi River, in hopes of keeping the then-St. Louis Rams in the city. Hunn grew up in California, taught English for two years to seventh-graders in the Long Beach Unified School District and has also worked for the Bakersfield Californian and Anchorage Daily News. He has won numerous awards for education reporting, was part of the Post-Dispatch's Pulitzer-finalist team for a city hall shooting outside of St. Louis and was named a 2016 finalist in feature writing by the Society of American Business Writers and Editors.

FEATURED INTERACTIVES



INTERACTIVES

How is the Texas power grid holding up? Get live updates here.



REAL ESTATE

Home value tracker: Houston's most and least expensive ZIP codes



REAL ES

Track price Texas

Editor's Picks



TRENDING

Inside Houston Botanic Garden's glowing Chinese lantern display



LOCAL

Baby Holly, whose parents were killed in Houston, tells her story



RESTAURANTS

Face of the future: how it survives



[Top](#)

[About](#)

[Contact](#)

[Services](#)

[Account](#)

Exhibit 6

Apache Corp

Bank of America
Merrill Lynch

4Q16 Earnings Recap: lowering PO to \$60 on confirmed pivot to gas

Reiterate Rating: UNDERPERFORM | PO: 60.00 USD | Price: 52.98 USD

Equity | 24 February 2017

Preliminary guidance confirms a pivot to gas

A relatively benign 4Q16 turns attention to Apache's strategy that increasingly places the 'Alpine High' wet gas play at the center of its strategic outlook. In our view, Apache will return to growth this year - but not until 2H17 as has been the trend for many peers. However the critical difference is that growth would be driven by gas, reducing APA's oil mix by about 10% through 4Q18. Planned spending of \$3.1-\$3.2bn over the next two years is up around 60% from 2016; \$900mm holds international production flat; the primary balance of remaining spend targets the Midland / Delaware basins, where production increases about 150% between 4Q16 and 4Q17. However of the about 128,000 boepd projected increase in production, oil accounts for only 17,000 bopd confirming a pivot towards gas.

Revised guidance lowers PO to \$60

By our analysis which assumes gas prices at \$3.50 but oil at \$70 from 2020, Apache's pivot to gas is a drag on multiple compression - raising the risk of widening gas differentials given the implied ramp in West Texas gas production approaching 700 mmcfe/d within two years. When separating the value of Egypt and the UK North Sea our price objective is \$60/sh - lowered from \$66/sh due to updated guidance. This is based on a five-year target multiple for the wider sector of 5.5x EV/DACF. Undisclosed proceeds from non-core asset sales may be moderately accretive in 2H17 but with limited upside to fair value during its transition to gas, we believe appropriate rating vs the large cap E&P peer group is Underperform.

In line quarter, helped by tax

Adjusted EPS of (\$0.06) missed consensus of \$0.06 but was in line with BofAML (\$0.08). Versus our estimate, revenue looked light (-\$0.31c) with higher exploration and G&A at close to consensus due to an usually low tax rate. Oil and gas production of 490 Mboepd (including Egyptian tax barrels) was below consensus of 503 Mboepd, mostly likely on PSC entitlements in Egypt. Management introduced 2017 guidance and preliminary guidance through 4Q18. Capex increases to \$3.1bn and \$3.2bn, respectively from \$1.9bn in 2016 and by our estimates keeps APA within cash flow at strip, before dividends.

Estimates (Dec)

(US\$)	2015A	2016A	2017E	2018E	2019E
EPS	33.53	(0.44)	2.08	2.16	0
GAAP EPS	0	0	0	0	0
EPS Change (YoY)	173.9%	NM	NM	3.8%	NM
Consensus EPS (Bloomberg)			1.44	2.08	4.50
DPS	1.00	1.00	1.00	1.00	1.00

Valuation (Dec)

	2015A	2016A	2017E	2018E	2019E
P/E	1.6x	NM	25.5x	24.5x	NA
GAAP P/E	NA	NA	NA	NA	NA
Dividend Yield	1.9%	1.9%	1.9%	1.9%	1.9%
EV / EBITDA*	NA	NA	NA	NA	NA
Free Cash Flow Yield*	-8.3%	2.1%	3.7%	5.7%	8.2%

* For full definitions of *method*SM measures, see page 7.

BofA Merrill Lynch does and seeks to do business with issuers covered in its research reports. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision.

Refer to important disclosures on page 8 to 10. Analyst Certification on page 6. Price Objective Basis/Risk on page 6.

11715135

Timestamp: 24 February 2017 07:27AM EST

Key Changes

(US\$)	Previous	Current
Price Obj.	66.00	60.00

Doug Leggate
Research Analyst
MLPF&S
+1 713 247 6013
doug.leggate@baml.com

Jason Smith
Research Analyst
MLPF&S
+1 646 855 2602
jsmith51@baml.com

John H. Abbott
Research Analyst
MLPF&S
+1 713 247 7144
john.h.abbott@baml.com

Kalei Akamine
Research Analyst
MLPF&S
+1 713 247 7880
kalei.akamine@baml.com

Stock Data

Price	52.98 USD
Price Objective	60.00 USD
Date Established	23-Feb-2017
Investment Opinion	B-3-7
52-Week Range	36.09 USD - 69.00 USD
Mkt Val (mn) / Shares Out (mn)	20,026 USD / 378.0
Average Daily Value (mn)	193.50 USD
BofAML Ticker / Exchange	APA / NYS
Bloomberg / Reuters	APA US / APA.N
ROE (2017E)	12.3%
Net Dbt to Eqty (Dec-2016A)	93.3%

iQprofileSM Apache Corp

iQmethodSM – Bus Performance*

(US\$ Millions)	2015A	2016A	2017E	2018E	2019E
Return on Capital Employed	NA	NA	NA	NA	NA
Return on Equity	96.0%	-2.4%	12.3%	12.0%	12.5%
Operating Margin	NA	NA	NA	NA	NA
Free Cash Flow	(1,655)	415	742	1,151	1,640

iQmethodSM – Quality of Earnings*

(US\$ Millions)	2015A	2016A	2017E	2018E	2019E
Cash Realization Ratio	0.2x	NM	5.4x	5.9x	5.9x
Asset Replacement Ratio	1.4x	0.8x	1.4x	1.2x	1.1x
Tax Rate	NA	NA	NA	NA	NA
Net Debt-to-Equity Ratio	76.4%	93.3%	93.5%	88.6%	76.6%
Interest Cover	-16.8x	-3.0x	4.5x	4.6x	4.8x

Income Statement Data (Dec)

(US\$ Millions)	2015A	2016A	2017E	2018E	2019E
Sales	6,510	5,367	7,173	8,164	9,157
% Change	-50.8%	-17.6%	33.7%	13.8%	12.2%
Gross Profit	4,542	3,534	5,242	5,926	6,568
% Change	-55.0%	-22.2%	48.3%	13.0%	10.8%
EBITDA	NA	NA	NA	NA	NA
% Change	NA	NA	NA	NA	NA
Net Interest & Other Income	(511)	(417)	(402)	(402)	(402)
Net Income (Adjusted)	12,665	(168)	790	822	918
% Change	168.4%	NM	NM	4.1%	11.7%

Free Cash Flow Data (Dec)

(US\$ Millions)	2015A	2016A	2017E	2018E	2019E
Net Income from Cont Operations (GAAP)	NA	NA	NA	NA	NA
Depreciation & Amortization	2,976	2,460	2,535	3,084	3,600
Change in Working Capital	(80)	122	0	0	0
Deferred Taxation Charge	(1,445)	(833)	190	200	196
Other Adjustments, Net	1,103	650	1,524	1,579	1,639
Capital Expenditure	(4,209)	(1,984)	(3,507)	(3,712)	(3,796)
Free Cash Flow	-1,655	415	742	1,151	1,640
% Change	-6.6%	NM	78.5%	55.2%	42.5%

Balance Sheet Data (Dec)

(US\$ Millions)	2015A	2016A	2017E	2018E	2019E
Cash & Equivalents	1,467	1,377	1,214	1,434	2,176
Trade Receivables	1,253	832	832	832	832
Other Current Assets	1,032	1,032	1,032	1,032	1,032
Property, Plant & Equipment	20,838	18,867	19,379	19,548	19,284
Other Non-Current Assets	910	411	411	411	411
Total Assets	25,500	22,519	22,868	23,257	23,735
Short-Term Debt	0	0	0	0	0
Other Current Liabilities	1,841	1,843	2,033	2,233	2,429
Long-Term Debt	8,716	8,544	8,544	8,544	8,544
Other Non-Current Liabilities	5,453	4,453	4,453	4,453	4,453
Total Liabilities	16,010	14,840	15,030	15,230	15,426
Total Equity	9,490	7,679	7,838	8,026	8,309
Total Equity & Liabilities	25,500	22,519	22,868	23,257	23,735

* For full definitions of iQmethodSM measures, see page 7.

Company Sector

Oil & Gas Producers

Company Description

APA is one of the largest US E&P companies with 2.2 BBOE of proven reserves (61% liquids). It is an acquirer/exploiter/explorer, fiscally conservative company that has grown its reserves and production consistently via acquisitions and organic projects. Operations are focused in the US, Canada, Egypt, and the North Sea.

Investment Rationale

Following a series of non-core asset sales, Apache enters 2016 with \$1.6bn of cash and one of the most resilient balance sheets to endure the current downturn. At the same time, production that is some 53% oil positions the shares with material leverage to an oil recovery. However, as a consequence of acquisition related strength relative outperformance versus peers is unjustified, leaving the shares with only modest upside in the event of an oil recovery.

Stock Data

Average Daily Volume	3,652,265
----------------------	-----------

Quarterly Earnings Estimates

	2016	2017
Q1	-0.09A	0.36E
Q2	-0.26A	0.29E
Q3	-0.03A	0.78E
Q4	-0.06A	0.65E

4Q16 Earnings highlights

Confirming the pivot to gas

A relatively benign 4Q16 turns attention to a strategy that increasingly places the Alpine high wet gas play at the center of its strategic outlook. In our view, Apache will return to growth this year - but not until 2H17, as has been the trend of many peers but with the critical difference that growth would be driven by gas that by our estimates will reduce APA's oil mix by about 10% through 4Q18. Of planned spending of \$3.1-\$3.2bn over the next two years is up around 60% from 2016; \$900mm holds international production flat, in part resetting the necessary spending to recover entitlement volumes in Egypt; of the balance the bulk of planned spending targets the Midland / Delaware basin, where production increases about 150% between 4Q16 and 4Q17; however of the approximate 128,000 boepd projected increase in production, oil production increases by just 17,000 bopd confirming a pivot towards gas.

By our analysis which assumes gas prices at \$3.50 but oil at \$70 from 2020, Apache's pivot to gas is a drag on multiple compression – and raises the risk of widening gas differentials given the implied ramp in West Texas gas production approaching 700 mmcf/d within two years. When separating the value of Egypt and the UK North Sea our price objective is \$60/sh – lowered from \$66/sh due to updated guidance. This is based on a five-year target multiple for the wider sector of 5.5x EV/DACF. Undisclosed proceeds from non-core asset sales may be moderately accretive in 2H17 but with limited upside to fair value during its transition to gas we believe appropriate rating vs the large cap E&P peer group is Underperform.

Table 1: Revised guidance suggests fair value of \$60 (US @ 5.5x EV/DACF)

Apache EV/DACF Multiple valuation

Equity Value / sh	\$60						
Implied Multiple	4.5x						
	2015A	2016E	2017E	2018E	2019E	2020E	2021E
Shares	378	379	380	380	380	380	380
Equity Value	22,665	22,740	22,800	22,800	22,800	22,800	22,800
Net debt	7,249	7,167	7,330	7,110	6,368	5,088	3,486
Enterprise Value	29,914	29,907	30,130	29,910	29,168	27,888	26,286
DACF, as reported	2,966	2,548	4,510	5,124	5,697	6,000	6,205
Minority distribution	(129)	(276)	(525)	(551)	(517)	(504)	(508)
DACF pro forma	2,837	2,272	3,985	4,574	5,179	5,496	5,697
Egypt cashflow, net		872	1061	1113	1046	1019	1027
Egypt EV	5164	5.9	4.9	4.6	4.9	5.1	
Nsea		601	682	723	760	784	784
Nsea EV/DACF	1,211	2.0	1.8	1.7	1.6	1.5	
Residual US DACF		799	2,241	2,737	3,374	3,693	3,886
US EV/DACF	23,539	23,532	23,755	23,535	22,793	21,513	19,911
US EV/DACF		10.5x	8.7x	7.0x	6.2x	5.5x	
Memo: EV / Forward DACF	11.7x	6.6x	5.9x	5.3x	4.9x	4.5x	

Source: BofA Merrill Lynch Global Research

Earnings recap

Adjusted EPS of (\$0.06) missed consensus of \$0.06, but was in line with BofAML (\$0.08). Versus our estimate, revenue looked light (-\$0.31c), with higher exploration expense from a dry hole at Beryl in the North Sea and G&A expense offset by an unusually low tax rate. Oil and gas production of 490 Mboepd (including Egyptian tax barrels) was below consensus of 503 Mboepd, most likely on the PSC entitlements in Egypt. Other highlights for the quarter can be summarized as:

- **Provided 2017 and 2018 guidance.** For 2017 and 2018, it plans to spend approximately \$3.1bn and \$3.2bn, respectively. Note its 2017 budget is based off \$50 WTI/ \$51 Brent / \$3.15 HH and \$5.25 North Sea gas. Over the next two years, it expects to grow top-line production at 10% with the Midland and Delaware expected to grow at an annual rate in excess of 50%. Embedded in this target is an 18% CAGR for Delaware and Midland oil growth, but the majority of the planned

growth is Alpine High gas, which we expect to dilute APA's multiple versus peers. A key risk, in our view, is the impact of a flood of new gas production on regional differentials, specifically at Waha hub, leaving APA's unit cash margins at risk vs oil levered peers.

- **Capital Allocation.** Of its \$3.1bn budget in 2017, about \$900mm will be allocated to its North Sea and Egyptian assets to maintain long-term cash flow while the bulk (\$2bn) would be spent on the Permian where it expects to average 15 rigs (five in the Midland, three in the Del, one in the Northwest Shelf, one in the Central platform and five at Alpine high). Outside of the Permian in North America onshore, it plans to drill 10 wells in the SCOOP/STACK play, four wells in the Midcon to hold acreage and 10 in Canada. Note the 2017 budget includes about \$500mm for Alpine High infrastructure. For 2018, we expect approximately a similar capital allocation.
- **2017 production trajectory.** Like some other E&Ps that have reported, APA's production looks back end loaded, driven by then Alpine High in the latter half of 2017. Note production is expected to decline during the first half of the year with 2Q17 guidance 372-384 Mboe / d before rebounding as the first phase of Alpine infrastructure is expected to be in place in July and after turn around activity in the North Sea.
- **Cash flow outspend anticipated in 2017.** APA expects to cover this at strip with \$400mm of noncore asset sales in the Permian that closed in 1Q17. It also expects to receive proceeds from the sale of the North Sea midstream infrastructure in the third quarter.
- **Suriname** exploration well (Kolibri 1#) seems on track to be spud next week on block 53. APA holds 45% interest in this prospect with expected net cost off of \$37mm. Total depth is expected in approximately 10 weeks. We currently attribute no value to Suriname in our price objective.

The table below summarizes actual results versus prior periods and our estimate.

Table 2: APA 4Q16 Earnings Estimates (\$ in Millions, except in per share data)

Segment Earnings	4Q16A	4Q16E	4Q15A	YOY	3Q16A	QOQ
Total Rev & Non-Op Inc	1,451	1,570	1,482	-2%	1,438	1%
LOE	(375)	(371)	(456)	-18%	(382)	-2%
DD&A	(585)	(616)	(729)	-20%	(610)	-4%
Income Tax Expense	(29)	(154)	289	-110%	379	-108%
Other Income / Expenses	(803)	(458)	(11,790)	-93%	(2,027)	-60%
Net Income (Adjusted)	(23)	(29)	3,174	-101%	(12)	92%
Special Items	159	-	7,189		595	
Net Income (Reported)	(182)	(29)	(4,015)	-95%	(607)	-70%
Earnings (Adjusted)	(0.06)	(0.08)	8.40	-101%	(0.03)	92%
Earnings (Reported)	(0.38)	0.07	(11.71)	-97%	(1.47)	-74%
Dividend	0.25	0.25	0.25	0%	0.25	0%

Source: BofA Merrill Lynch Global Research

Adjusting 4Q16 results and updated for management guidance, our estimates change as follows.

Table 3: APA Earnings Estimates

	Q1	Q2	Q3	Q4	FY	BBG Consensus
2015A	8.43	12.76	3.94	8.40	33.53	(0.71)
2016E	(0.09)	(0.26)	(0.03)	(0.06)	(0.44)	(0.96)
Previous	(0.09)	(0.26)	(0.03)	(0.08)	(0.46)	n/a
2017E	0.36	0.29	0.78	0.65	2.08	1.44
Previous	0.46	0.62	0.97	0.88	2.92	n/a
2018E	0.54	0.54	0.54	0.54	2.16	2.08
Previous	0.91	0.93	0.94	0.94	3.73	n/a

Table 3: APA Earnings Estimates

	Q1	Q2	Q3	Q4	FY	BBG Consensus
--	----	----	----	----	----	---------------

Source: BofA Merrill Lynch Global Research

Price objective basis & risk

Apache Corp (APA)

Our price objective of \$60/share is based on a five-year outlook that assumes a 5.5x DACF multiple and a commodity deck of \$67.50 WTI/\$70 Brent/\$3.50 HH. The multiple is based on a finite timeline to delivery that is supported by core NAV.

Downside risks to our price objective: E&P companies, in general, are subject to commodity price volatility, commensurate slowdowns in development drilling and delays to large scale projects. Upside risks to achieving our price objective are: higher than forecasted production and commodity prices. Downside risks to achieving our price objective are: (1) A significant portion of APA's production (22%) is in Egypt, where political risk may result in a partial or complete loss of asset value there, (2) Project timing delays could impact our growth rates, and (3) As an oil leveraged company, a weak oil price environment would affect our estimates and valuation.

Analyst Certification

I, Doug Leggate, hereby certify that the views expressed in this research report accurately reflect my personal views about the subject securities and issuers. I also certify that no part of my compensation was, is, or will be, directly or indirectly, related to the specific recommendations or view expressed in this research report.

US - Large Cap Oils Coverage Cluster

Investment rating	Company	BofA Merrill Lynch ticker	Bloomberg symbol	Analyst
BUY				
	Anadarko Petroleum Corp.	APC	APC US	Doug Leggate
	Chevron Corp.	CVX	CVX US	Doug Leggate
	ConocoPhillips	COP	COP US	Doug Leggate
	Continental Resources Inc.	CLR	CLR US	Doug Leggate
	Devon Energy Corp.	DVN	DVN US	Doug Leggate
	EOG Resources	EOG	EOG US	Doug Leggate
	Hess Corp.	HES	HES US	Doug Leggate
	Marathon Oil Corp.	MRO	MRO US	Doug Leggate
	Marathon Petroleum Company	MPC	MPC US	Doug Leggate
	Pioneer Natural Resources	PXD	PXD US	Doug Leggate
	Range Resources Corp	RRC	RRC US	Doug Leggate
	Tesoro Corp.	TSO	TSO US	Doug Leggate
	Valero Energy Corp.	VLO	VLO US	Doug Leggate
NEUTRAL				
	Chesapeake Energy Corp.	CHK	CHK US	Doug Leggate
	Delek US Holdings, Inc.	DK	DK US	Doug Leggate
	ExxonMobil Corp.	XOM	XOM US	Doug Leggate
	HollyFrontier Corp	HFC	HFC US	Doug Leggate
	Noble Energy	NBL	NBL US	Doug Leggate
	Occidental Petroleum Corp.	OXY	OXY US	Doug Leggate
	Phillips 66	PSX	PSX US	Doug Leggate
UNDERPERFORM				
	Apache Corp	APA	APA US	Doug Leggate
	Cabot Oil & Gas Corp.	COG	COG US	Doug Leggate
	Calumet Specialty Products Partners	CLMT	CLMT US	Jason Smith
	PBF Energy	PBF	PBF US	Doug Leggate
	Southwestern Energy Corp.	SWN	SWN US	Doug Leggate

iQmethodSM Measures Definitions

Business Performance	Numerator	Denominator
Return On Capital Employed	NOPAT = (EBIT + Interest Income) * (1 - Tax Rate) + Goodwill Amortization	Total Assets – Current Liabilities + ST Debt + Accumulated Goodwill Amortization
Return On Equity	Net Income	Shareholders' Equity
Operating Margin	Operating Profit	Sales
Earnings Growth	Expected 5-Year CAGR From Latest Actual	N/A
Free Cash Flow	Cash Flow From Operations – Total Capex	N/A
Quality of Earnings		
Cash Realization Ratio	Cash Flow From Operations	Net Income
Asset Replacement Ratio	Capex	Depreciation
Tax Rate	Tax Charge	Pre-Tax Income
Net Debt-To-Equity Ratio	Net Debt = Total Debt, Less Cash & Equivalents	Total Equity
Interest Cover	EBIT	Interest Expense
Valuation Toolkit		
Price / Earnings Ratio	Current Share Price	Diluted Earnings Per Share (Basis As Specified)
Price / Book Value	Current Share Price	Shareholders' Equity / Current Basic Shares
Dividend Yield	Annualised Declared Cash Dividend	Current Share Price
Free Cash Flow Yield	Cash Flow From Operations – Total Capex	Market Cap. = Current Share Price * Current Basic Shares
Enterprise Value / Sales	EV = Current Share Price * Current Shares + Minority Equity + Net Debt + Other LT Liabilities	Sales
EV / EBITDA	Enterprise Value	Basic EBIT + Depreciation + Amortization

iQmethodSM is the set of BofA Merrill Lynch standard measures that serve to maintain global consistency under three broad headings: Business Performance, Quality of Earnings, and validations. The key features of iQmethod are: A consistently structured, detailed, and transparent methodology. Guidelines to maximize the effectiveness of the comparative valuation process, and to identify some common pitfalls.

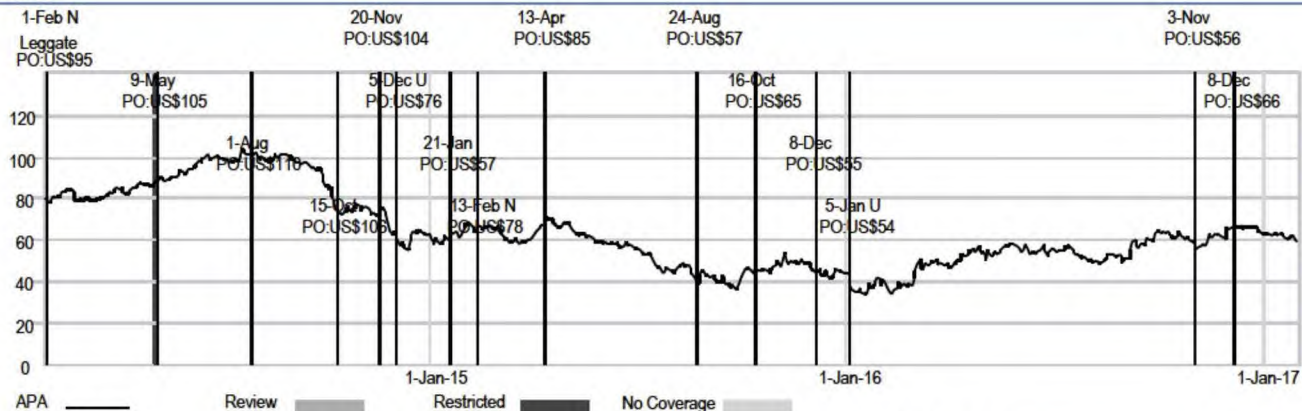
iQdatabase[®] is our real-time global research database that is sourced directly from our equity analysts' earnings models and includes forecasted as well as historical data for income statements, balance sheets, and cash flow statements for companies covered by BofA Merrill Lynch.

iQprofileSM, iQmethodSM are service marks of Bank of America Corporation. iQdatabase[®] is a registered service mark of Bank of America Corporation.

Disclosures

Important Disclosures

APA Price Chart



B: Buy, N: Neutral, U: Underperform, PO: Price Objective, NA: No longer valid, NR: No Rating

The Investment Opinion System is contained at the end of the report under the heading "Fundamental Equity Opinion Key". Dark grey shading indicates the security is restricted with the opinion suspended. Medium grey shading indicates the security is under review with the opinion withdrawn. Light grey shading indicates the security is not covered. Chart is current as of January 31, 2017 or such later date as indicated.

Equity Investment Rating Distribution: Energy Group (as of 31 Dec 2016)

Coverage Universe	Count	Percent	Inv. Banking Relationships*	Count	Percent
Buy	106	48.18%	Buy	78	73.58%
Hold	52	23.64%	Hold	40	76.92%
Sell	62	28.18%	Sell	38	61.29%

Equity Investment Rating Distribution: Global Group (as of 31 Dec 2016)

Coverage Universe	Count	Percent	Inv. Banking Relationships*	Count	Percent
Buy	1590	50.64%	Buy	989	62.20%
Hold	702	22.36%	Hold	438	62.39%
Sell	848	27.01%	Sell	406	47.88%

* Issuers that were investment banking clients of BofA Merrill Lynch or one of its affiliates within the past 12 months. For purposes of this Investment Rating Distribution, the coverage universe includes only stocks. A stock rated Neutral is included as a Hold, and a stock rated Underperform is included as a Sell.

FUNDAMENTAL EQUITY OPINION KEY: Opinions include a Volatility Risk Rating, an Investment Rating and an Income Rating. **VOLATILITY RISK RATINGS**, indicators of potential price fluctuation, are: A - Low, B - Medium and C - High. **INVESTMENT RATINGS** reflect the analyst's assessment of a stock's: (i) absolute total return potential and (ii) attractiveness for investment relative to other stocks within its Coverage Cluster (defined below). There are three investment ratings: 1 - Buy stocks are expected to have a total return of at least 10% and are the most attractive stocks in the coverage cluster; 2 - Neutral stocks are expected to remain flat or increase in value and are less attractive than Buy rated stocks and 3 - Underperform stocks are the least attractive stocks in a coverage cluster. Analysts assign investment ratings considering, among other things, the 0-12 month total return expectation for a stock and the firm's guidelines for ratings dispersions (shown in the table below). The current price objective for a stock should be referenced to better understand the total return expectation at any given time. The price objective reflects the analyst's view of the potential price appreciation (depreciation).

Investment rating	Total return expectation (within 12-month period of date of initial rating)	Ratings dispersion guidelines for coverage cluster*
Buy	≥ 10%	≤ 70%
Neutral	≥ 0%	≤ 30%
Underperform	N/A	≥ 20%

* Ratings dispersions may vary from time to time where BofA Merrill Lynch Research believes it better reflects the investment prospects of stocks in a Coverage Cluster.

INCOME RATINGS, indicators of potential cash dividends, are: 7 - same/higher (dividend considered to be secure), 8 - same/lower (dividend not considered to be secure) and 9 - pays no cash dividend. Coverage Cluster is comprised of stocks covered by a single analyst or two or more analysts sharing a common industry, sector, region or other classification(s). A stock's coverage cluster is included in the most recent BofA Merrill Lynch report referencing the stock.

Price charts for the securities referenced in this research report are available at <http://pricecharts.baml.com>, or call 1-800-MERRILL to have them mailed.

MLPF&S or one of its affiliates acts as a market maker for the equity securities recommended in the report: Apache Corp.

The issuer is or was, within the last 12 months, an investment banking client of MLPF&S and/or one or more of its affiliates: Apache Corp.

MLPF&S or an affiliate has received compensation from the issuer for non-investment banking services or products within the past 12 months: Apache Corp.

The issuer is or was, within the last 12 months, a non-securities business client of MLPF&S and/or one or more of its affiliates: Apache Corp.

MLPF&S or an affiliate expects to receive or intends to seek compensation for investment banking services from this issuer or an affiliate of the issuer within the next three months: Apache Corp.

MLPF&S or one of its affiliates is willing to sell to, or buy from, clients the common equity of the issuer on a principal basis: Apache Corp.

The issuer is or was, within the last 12 months, a securities business client (non-investment banking) of MLPF&S and/or one or more of its affiliates: Apache Corp.

BofA Merrill Lynch Research Personnel (including the analyst(s) responsible for this report) receive compensation based upon, among other factors, the overall profitability of Bank of America Corporation, including profits derived from investment banking. The analyst(s) responsible for this report may also receive compensation based upon, among other factors, the overall profitability of the Bank's sales and trading businesses relating to the class of securities or financial instruments for which such analyst is responsible.

Other Important Disclosures

From time to time research analysts conduct site visits of covered issuers. BofA Merrill Lynch policies prohibit research analysts from accepting payment or reimbursement for travel expenses from the issuer for such visits.

Prices are indicative and for information purposes only. Except as otherwise stated in the report, for the purpose of any recommendation in relation to: (i) an equity security, the price referenced is the publicly traded price of the security as of close of business on the day prior to the date of the report or, if the report is published during intraday trading, the price referenced is indicative of the traded price as of the date and time of the report; or (ii) a debt security (including equity preferred and CDS), prices are indicative as of the date and time of the report and are from various sources including Bank of America Merrill Lynch trading desks.

The date and time of completion of the production of any recommendation in this report shall be the date and time of dissemination of this report as recorded in the report timestamp.

Officers of MLPF&S or one or more of its affiliates (other than research analysts) may have a financial interest in securities of the issuer(s) or in related investments.

BofA Merrill Lynch Global Research policies relating to conflicts of interest are described at <http://go.bofa.com/coi>.

'BofA Merrill Lynch' includes Merrill Lynch, Pierce, Fenner & Smith Incorporated ('MLPF&S') and its affiliates. Investors should contact their BofA Merrill Lynch representative or Merrill Lynch Global Wealth Management financial advisor if they have questions concerning this report. 'BofA Merrill Lynch' and 'Merrill Lynch' are each global brands for BofA Merrill Lynch Global Research.

Information relating to Non-US affiliates of BofA Merrill Lynch and Distribution of Affiliate Research Reports:

MLPF&S distributes, or may in the future distribute, research reports of the following non-US affiliates in the US (short name: legal name, regulator): Merrill Lynch (South Africa): Merrill Lynch South Africa (Pty) Ltd., regulated by The Financial Service Board; MLI (UK): Merrill Lynch International, regulated by the Financial Conduct Authority (FCA) and the Prudential Regulation Authority (PRA); Merrill Lynch (Australia): Merrill Lynch Equities (Australia) Limited, regulated by the Australian Securities and Investments Commission; Merrill Lynch (Hong Kong): Merrill Lynch (Asia Pacific) Limited, regulated by the Hong Kong Securities and Futures Commission (HKSF); Merrill Lynch (Singapore): Merrill Lynch (Singapore) Pte Ltd, regulated by the Monetary Authority of Singapore (MAS); Merrill Lynch (Canada): Merrill Lynch Canada Inc, regulated by the Investment Industry Regulatory Organization of Canada; Merrill Lynch (Mexico): Merrill Lynch Mexico, SA de CV, Casa de Bolsa, regulated by the Comisión Nacional Bancaria y de Valores; Merrill Lynch (Argentina): Merrill Lynch Argentina SA, regulated by Comisión Nacional de Valores; Merrill Lynch (Japan): Merrill Lynch Japan Securities Co., Ltd., regulated by the Financial Services Agency; Merrill Lynch (Seoul): Merrill Lynch International Incorporated (Seoul Branch) regulated by the Financial Supervisory Service; Merrill Lynch (Taiwan): Merrill Lynch Securities (Taiwan) Ltd., regulated by the Securities and Futures Bureau; DSP Merrill Lynch (India): DSP Merrill Lynch Limited, regulated by the Securities and Exchange Board of India; PT Merrill Lynch (Indonesia): PT Merrill Lynch Indonesia, regulated by Otoritas Jasa Keuangan (OJK); Merrill Lynch (Israel): Merrill Lynch Israel Limited, regulated by Israel Securities Authority; Merrill Lynch (Russia): OOO Merrill Lynch Securities, Moscow, regulated by the Central Bank of the Russian Federation; Merrill Lynch (DIFC): Merrill Lynch International (DIFC Branch), regulated by the Dubai Financial Services Authority (DFSA); Merrill Lynch (Spain): Merrill Lynch Capital Markets Espana, S.A.S.V., regulated by Comisión Nacional del Mercado de Valores; Merrill Lynch (Brazil): Bank of America Merrill Lynch Banco Multiplo S.A., regulated by Comissão de Valores Mobiliários; Merrill Lynch KSA Company, Merrill Lynch Kingdom of Saudi Arabia Company, regulated by the Capital Market Authority.

This research report has been approved for publication and is distributed in the United Kingdom (UK) to professional clients and eligible counterparties (as each is defined in the rules of the FCA and the PRA) by MLI (UK) and Bank of America Merrill Lynch International Limited, which are authorized by the PRA and regulated by the FCA and the PRA, and is distributed in the UK to retail clients (as defined in the rules of the FCA and the PRA) by Merrill Lynch International Bank Limited, London Branch, which is authorized by the Central Bank of Ireland and subject to limited regulation by the FCA and PRA - details about the extent of our regulation by the FCA and PRA are available from us on request; has been considered and distributed in Japan by Merrill Lynch (Japan), a registered securities dealer under the Financial Instruments and Exchange Act in Japan; is issued and distributed in Hong Kong by Merrill Lynch (Hong Kong) which is regulated by HKSF (research reports containing any information in relation to, or advice on, futures contracts are not intended for issuance or distribution in Hong Kong and are not directed to, or intended for issuance or distribution to, or use by, any person in Hong Kong); is issued and distributed in Taiwan by Merrill Lynch (Taiwan); is issued and distributed in India by DSP Merrill Lynch (India); and is issued and distributed in Singapore to institutional investors and/or accredited investors (each as defined under the Financial Advisers Regulations) by Merrill Lynch International Bank Limited (Merchant Bank) (MLIBLMB) and Merrill Lynch (Singapore) (Company Registration Nos F 06872E and 198602883D respectively). MLIBLMB and Merrill Lynch (Singapore) are regulated by MAS. Bank of America N.A., Australian Branch (ARBN 064 874 531), AFS License 412901 (BANA Australia) and Merrill Lynch Equities (Australia) Limited (ABN 65 006 276 795), AFS License 235132 (MLEA) distribute this report in Australia only to 'Wholesale' clients as defined by s.761G of the Corporations Act 2001. With the exception of BANA Australia, neither MLEA nor any of its affiliates involved in preparing this research report is an Authorised Deposit-Taking Institution under the Banking Act 1959 nor regulated by the Australian Prudential Regulation Authority. No approval is required for publication or distribution of this report in Brazil and its local distribution is by Merrill Lynch (Brazil) in accordance with applicable regulations. Merrill Lynch (DIFC) is authorized and regulated by the DFSA. Research reports prepared and issued by Merrill Lynch (DIFC) are done so in accordance with the requirements of the DFSA conduct of business rules. Bank of America Merrill Lynch International Limited, Frankfurt Branch (BAMLI Frankfurt) distributes this report in Germany and is regulated by BaFin.

This research report has been prepared and issued by MLPF&S and/or one or more of its non-US affiliates. MLPF&S is the distributor of this research report in the US and accepts full responsibility for research reports of its non-US affiliates distributed to MLPF&S clients in the US. Any US person receiving this research report and wishing to effect any transaction in any security discussed in the report should do so through MLPF&S and not such foreign affiliates. Hong Kong recipients of this research report should contact Merrill Lynch (Asia Pacific) Limited in respect of any matters relating to dealing in securities (and not futures contracts) or provision of specific advice on securities (and not futures contracts). Singapore recipients of this research report should contact Merrill Lynch International Bank Limited (Merchant Bank) and/or Merrill Lynch (Singapore) Pte Ltd in respect of any matters arising from, or in connection with, this research report.

General Investment Related Disclosures:

Taiwan Readers: Neither the information nor any opinion expressed herein constitutes an offer or a solicitation of an offer to transact in any securities or other financial instrument. No part of this report may be used or reproduced or quoted in any manner whatsoever in Taiwan by the press or any other person without the express written consent of BofA Merrill Lynch.

This research report provides general information only. Neither the information nor any opinion expressed constitutes an offer or an invitation to make an offer, to buy or sell any securities or other financial instrument or any derivative related to such securities or instruments (e.g., options, futures, warrants, and contracts for differences). This report is not intended to provide personal investment advice and it does not take into account the specific investment objectives, financial situation and the particular needs of any specific person. Investors should seek financial advice regarding the appropriateness of investing in financial instruments and implementing investment strategies discussed or recommended in this report and should understand that statements regarding future prospects may not be realized. Any decision to purchase or subscribe for securities in any offering must be based solely on existing public information on such security or the information in the prospectus or other offering document issued in connection with such offering, and not on this report.

Securities and other financial instruments discussed in this report, or recommended, offered or sold by Merrill Lynch, are not insured by the Federal Deposit Insurance Corporation and are not deposits or other obligations of any insured depository institution (including, Bank of America, N.A.). Investments in general and, derivatives, in particular, involve numerous risks, including, among others, market risk, counterparty default risk and liquidity risk. No security, financial instrument or derivative is suitable for all investors. In some cases, securities and other financial instruments may be difficult to value or sell and reliable information about the value or risks related to the security or financial instrument may be difficult to obtain. Investors should note that income from such securities and other financial instruments, if any, may fluctuate and that price or value of such securities and instruments may rise or fall and, in some cases, investors may lose their entire principal investment. Past performance is not necessarily a guide to future performance. Levels and basis for taxation may change.

This report may contain a short-term trading idea or recommendation, which highlights a specific near-term catalyst or event impacting the issuer or the market that is anticipated to have a short-term price impact on the equity securities of the issuer. Short-term trading ideas and recommendations are different from and do not affect a stock's fundamental equity rating, which reflects both a longer term total return expectation and attractiveness for investment relative to other stocks within its Coverage Cluster. Short-term trading ideas and recommendations may be more or less positive than a stock's fundamental equity rating.

BofA Merrill Lynch is aware that the implementation of the ideas expressed in this report may depend upon an investor's ability to "short" securities or other financial instruments and that such action may be limited by regulations prohibiting or restricting "shortselling" in many jurisdictions. Investors are urged to seek advice regarding the applicability of such regulations prior to executing any short idea contained in this report.

Foreign currency rates of exchange may adversely affect the value, price or income of any security or financial instrument mentioned in this report. Investors in such securities and instruments, including ADRs, effectively assume currency risk.

UK Readers: The protections provided by the U.K. regulatory regime, including the Financial Services Scheme, do not apply in general to business coordinated by BofA Merrill Lynch entities located outside of the United Kingdom. BofA Merrill Lynch Global Research policies relating to conflicts of interest are described at <http://go.bofa.com/coi>.

MLPF&S or one of its affiliates is a regular issuer of traded financial instruments linked to securities that may have been recommended in this report. MLPF&S or one of its affiliates may, at any time, hold a trading position (long or short) in the securities and financial instruments discussed in this report.

BofA Merrill Lynch, through business units other than BofA Merrill Lynch Global Research, may have issued and may in the future issue trading ideas or recommendations that are inconsistent with, and reach different conclusions from, the information presented in this report. Such ideas or recommendations reflect the different time frames, assumptions, views and analytical methods of the persons who prepared them, and BofA Merrill Lynch is under no obligation to ensure that such other trading ideas or recommendations are brought to the attention of any recipient of this report.

In the event that the recipient received this report pursuant to a contract between the recipient and MLPF&S for the provision of research services for a separate fee, and in connection therewith MLPF&S may be deemed to be acting as an investment adviser, such status relates, if at all, solely to the person with whom MLPF&S has contracted directly and does not extend beyond the delivery of this report (unless otherwise agreed specifically in writing by MLPF&S). MLPF&S is and continues to act solely as a broker-dealer in connection with the execution of any transactions, including transactions in any securities mentioned in this report.

Copyright and General Information regarding Research Reports:

Copyright 2017 Bank of America Corporation. All rights reserved. iQmethod, iQmethod 2.0, iQprofile, iQtoolkit, iQworks are service marks of Bank of America Corporation. iQanalytics®, iQcustom®, iQdatabase® are registered service marks of Bank of America Corporation. This research report is prepared for the use of BofA Merrill Lynch clients and may not be redistributed, retransmitted or disclosed, in whole or in part, or in any form or manner, without the express written consent of BofA Merrill Lynch. BofA Merrill Lynch Global Research reports are distributed simultaneously to internal and client websites and other portals by BofA Merrill Lynch and are not publicly-available materials. Any unauthorized use or disclosure is prohibited. Receipt and review of this research report constitutes your agreement not to redistribute, retransmit, or disclose to others the contents, opinions, conclusion, or information contained in this report (including any investment recommendations, estimates or price targets) without first obtaining expressed permission from an authorized officer of BofA Merrill Lynch.

Materials prepared by BofA Merrill Lynch Global Research personnel are based on public information. Facts and views presented in this material have not been reviewed by, and may not reflect information known to, professionals in other business areas of BofA Merrill Lynch, including investment banking personnel. BofA Merrill Lynch has established information barriers between BofA Merrill Lynch Global Research and certain business groups. As a result, BofA Merrill Lynch does not disclose certain client relationships with, or compensation received from, such issuers in research reports. To the extent this report discusses any legal proceeding or issues, it has not been prepared as nor is it intended to express any legal conclusion, opinion or advice. Investors should consult their own legal advisers as to issues of law relating to the subject matter of this report. BofA Merrill Lynch Global Research personnel's knowledge of legal proceedings in which any BofA Merrill Lynch entity and/or its directors, officers and employees may be plaintiffs, defendants, co-defendants or co-plaintiffs with or involving issuers mentioned in this report is based on public information. Facts and views presented in this material that relate to any such proceedings have not been reviewed by, discussed with, and may not reflect information known to, professionals in other business areas of BofA Merrill Lynch in connection with the legal proceedings or matters relevant to such proceedings.

This report has been prepared independently of any issuer of securities mentioned herein and not in connection with any proposed offering of securities or as agent of any issuer of any securities. None of MLPF&S, any of its affiliates or their research analysts has any authority whatsoever to make any representation or warranty on behalf of the issuer(s). BofA Merrill Lynch Global Research policy prohibits research personnel from disclosing a recommendation, investment rating, or investment thesis for review by an issuer prior to the publication of a research report containing such rating, recommendation or investment thesis.

Any information relating to the tax status of financial instruments discussed herein is not intended to provide tax advice or to be used by anyone to provide tax advice. Investors are urged to seek tax advice based on their particular circumstances from an independent tax professional.

The information herein (other than disclosure information relating to BofA Merrill Lynch and its affiliates) was obtained from various sources and we do not guarantee its accuracy. This report may contain links to third-party websites. BofA Merrill Lynch is not responsible for the content of any third-party website or any linked content contained in a third-party website. Content contained on such third-party websites is not part of this report and is not incorporated by reference into this report. The inclusion of a link in this report does not imply any endorsement by or any affiliation with BofA Merrill Lynch. Access to any third-party website is at your own risk, and you should always review the terms and privacy policies at third-party websites before submitting any personal information to them. BofA Merrill Lynch is not responsible for such terms and privacy policies and expressly disclaims any liability for them.

Subject to the quiet period applicable under laws of the various jurisdictions in which we distribute research reports and other legal and BofA Merrill Lynch policy-related restrictions on the publication of research reports, fundamental equity reports are produced on a regular basis as necessary to keep the investment recommendation current.

Certain outstanding reports may contain discussions and/or investment opinions relating to securities, financial instruments and/or issuers that are no longer current. Always refer to the most recent research report relating to an issuer prior to making an investment decision.

In some cases, an issuer may be classified as Restricted or may be Under Review or Extended Review. In each case, investors should consider any investment opinion relating to such issuer (or its security and/or financial instruments) to be suspended or withdrawn and should not rely on the analyses and investment opinion(s) pertaining to such issuer (or its securities and/or financial instruments) nor should the analyses or opinion(s) be considered a solicitation of any kind. Sales persons and financial advisors affiliated with MLPF&S or any of its affiliates may not solicit purchases of securities or financial instruments that are Restricted or Under Review and may only solicit securities under Extended Review in accordance with firm policies.

Neither BofA Merrill Lynch nor any officer or employee of BofA Merrill Lynch accepts any liability whatsoever for any direct, indirect or consequential damages or losses arising from any use of this report or its contents.

Exhibit 7



4Q17 recap: medium term outlook helps visibility; but many questions unanswered

Reiterate Rating: UNDERPERFORM | PO: 45.00 USD | Price: 34.85 USD

Equity | 22 February 2018

Gas weighted growth outlook still the primary headwind

Apache's commitment to its Alpine High development continues to anchor an investment outlook that is complicated by the challenges of setting in motion a major project development, absent existing infrastructure and where the longer term outlook on realized prices has no visibility. Still, with 4Q17 earnings, management has endeavored to improve guidance, providing a medium term outlook on how production will evolve and the role that will be increasingly played by gas production as the key driver of growth. But when faced with a weak US natural gas price outlook and uncertain basis, we think the change in mix towards a higher proportion of gas is simply too difficult to have conviction on value until actual prices, costs and cashflow are tangible. Reiterate Underperform.

Potential midstream monetization may offer some relief

New this quarter is an outlook that suggests Permian production ex Alpine High is expected to be flat, while international output long the option on stronger Brent-based oil prices is in moderate decline. These are the portfolio choices being made by mgmt that render the investment case long-dated and to APA's credit, is aligned with an incentive compensation structure. Near term, mgmt has signaled the option to release value from its midstream investments. With a potential transaction this year albeit in an as yet undisclosed structure, the potential for some near term relief to recent share price underperformance which with spot gas prices at ~\$2.60 begs the question of whether share performance can get any worse. We adjust our estimates to reflect updated guidance.

APA does not screen expensive; but neither many oil peers

Benchmarked against the wider sector, APA is not expensive vs our PO which we trim slightly from \$47 to \$45 per share. At the same time, beyond a challenged gas price, we think APA is hardly a high risk proposition given a robust balance sheet, near 3% dividend yield and disciplined management committed to spending within cashflow. But countering any temptation to revisit the shares on valuation alone is the relative call that compares APA with equally undervalued stocks with more favorable commodity transitions towards oil, and it is on this basis that despite limited absolute downside, our relative call remains Underperform, although in our view it is difficult to conceive how things get much worse.

Estimates (Dec)

(US\$)	2016A	2017A	2018E	2019E	2020E
EPS	(1.18)	0.24	0.35	0.17	0.30
GAAP EPS	(3.36)	3.93	1.08	0.72	0.78
EPS Change (YoY)	NM	NM	45.8%	-51.4%	76.5%
Consensus EPS (Bloomberg)			0.11	1.25	1.35
DPS	1.00	1.00	1.00	1.00	1.00

Valuation (Dec)

	2016A	2017A	2018E	2019E	2020E
P/E	NM	145.2x	99.6x	205.0x	116.2x
GAAP P/E	NM	8.9x	32.3x	48.4x	44.7x
Dividend Yield	2.9%	2.9%	2.9%	2.9%	2.9%
EV / EBITDA*	10.9x	4.8x	4.5x	4.8x	4.6x
Free Cash Flow Yield*	5.1%	-1.3%	8.2%	7.7%	5.9%

* For full definitions of *Qmethod*SM measures, see page 8.

BofA Merrill Lynch does and seeks to do business with issuers covered in its research reports. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision. Refer to important disclosures on page 9 to 11. Analyst Certification on page 7. Price Objective Basis/Risk on page 7.

11845404

Timestamp: 22 February 2018 10:52PM EST

Key Changes

(US\$)	Previous	Current
Price Obj.	47.00	45.00

Doug Leggate
Research Analyst
MLPF&S
+1 713 247 6013
doug.leggate@baml.com

John H. Abbott
Research Analyst
MLPF&S
+1 713 247 7144
john.h.abbott@baml.com

Kalei Akamine
Research Analyst
MLPF&S
+1 713 247 7880
kalei.akamine@baml.com

Zade Satter
Research Analyst
MLPF&S
+1 713 247 7751
zade.satter@baml.com

Stock Data

Price	34.85 USD
Price Objective	45.00 USD
Date Established	22-Feb-2018
Investment Opinion	B-3-7
52-Week Range	34.50 USD - 55.23 USD
Mkt Val (mn) / Shares Out (mn)	13,348 USD / 383.0
Average Daily Value (mn)	167.12 USD
BofAML Ticker / Exchange	APA / NYS
Bloomberg / Reuters	APA US / APA.N
ROE (2018E)	1.8%
Net Dbt to Eqty (Dec-2017A)	77.5%

iQprofileSM Apache Corp

iQmethodSM – Bus Performance*

(US\$ Millions)	2016A	2017A	2018E	2019E	2020E
Return on Capital Employed	-4.2%	5.8%	3.9%	3.1%	3.2%
Return on Equity	-6.3%	1.3%	1.8%	0.9%	1.7%
Operating Margin	-23.6%	22.3%	22.7%	18.7%	17.7%
Free Cash Flow	685	(173)	1,099	1,029	789

iQmethodSM – Quality of Earnings*

(US\$ Millions)	2016A	2017A	2018E	2019E	2020E
Cash Realization Ratio	NM	27.7x	30.9x	NM	34.6x
Asset Replacement Ratio	0.7x	1.3x	1.2x	1.1x	1.2x
Tax Rate	26.3%	NM	64.7%	68.3%	65.7%
Net Debt-to-Equity Ratio	93.3%	77.5%	79.8%	83.1%	89.4%
Interest Cover	-3.0x	3.3x	4.1x	3.3x	3.3x

Income Statement Data (Dec)

(US\$ Millions)	2016A	2017A	2018E	2019E	2020E
Sales	5,367	5,887	6,862	6,667	7,054
% Change	-17.6%	9.7%	16.6%	-2.8%	5.8%
Gross Profit	3,534	4,693	4,953	4,596	4,762
% Change	-22.2%	32.8%	5.5%	-7.2%	3.6%
EBITDA	1,826	4,144	4,378	4,141	4,307
% Change	NM	126.9%	5.6%	-5.4%	4.0%
Net Interest & Other Income	(417)	(397)	(382)	(380)	(377)
Net Income (Adjusted)	(447)	92	133	65	114
% Change	NM	NM	44.3%	-50.9%	74.9%

Free Cash Flow Data (Dec)

(US\$ Millions)	2016A	2017A	2018E	2019E	2020E
Net Income from Cont Operations (GAAP)	(1,273)	1,502	413	275	298
Depreciation & Amortization	2,618	2,280	2,572	2,642	2,810
Change in Working Capital	153	(136)	0	0	0
Deferred Taxation Charge	(833)	(958)	608	475	457
Other Adjustments, Net	1,788	(144)	507	385	385
Capital Expenditure	(1,768)	(2,717)	(3,000)	(2,749)	(3,162)
Free Cash Flow	685	-173	1,099	1,029	789
% Change	NM	NM	NM	-6.4%	-23.3%

Balance Sheet Data (Dec)

(US\$ Millions)	2016A	2017A	2018E	2019E	2020E
Cash & Equivalents	1,377	1,668	1,861	1,900	1,900
Trade Receivables	1,128	1,375	1,375	1,375	1,375
Other Current Assets	736	682	682	682	682
Property, Plant & Equipment	18,867	17,759	17,682	17,404	17,370
Other Non-Current Assets	411	438	438	438	438
Total Assets	22,519	21,922	22,038	21,799	21,765
Short-Term Debt	0	550	550	550	550
Other Current Liabilities	1,843	2,014	2,014	2,014	2,014
Long-Term Debt	8,544	7,934	7,934	7,782	7,807
Other Non-Current Liabilities	4,453	2,633	3,241	3,716	4,174
Total Liabilities	14,840	13,131	13,739	14,062	14,545
Total Equity	7,679	8,791	8,299	7,737	7,221
Total Equity & Liabilities	22,519	21,922	22,038	21,799	21,765

* For full definitions of iQmethodSM measures, see page 8.

Company Sector

Oil & Gas Producers

Company Description

APA is one of the largest US E&P companies with 2.3 BBOE of proven reserves (63% liquids). It is an acquirer/exploiter/explorer, fiscally conservative company that has grown its reserves and production consistently via acquisitions and organic projects. Operations are focused in the US, Egypt, and the North Sea.

Investment Rationale

Our Underperform rating on APA reflects uncertainty around the scale, timing and cash flow impact of accelerating gas production in the Permian. While recent incremental disclosure has been welcomed, the skew towards gas from oil remains a headwind which we expect to keep incremental DACF per share growth lagging peers

Stock Data

Average Daily Volume 4,795,514

Quarterly Earnings Estimates

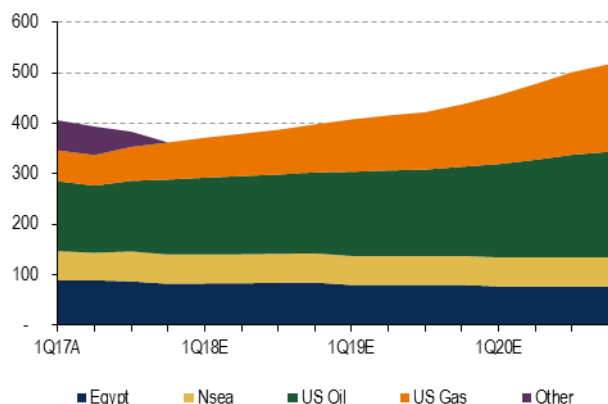
	2017	2018
Q1	0.08A	0.13E
Q2	-0.21A	0.10E
Q3	0.04A	0.09E
Q4	0.33A	0.03E

4Q17 Earnings recap

Underperform: but can the outlook really get much worse?

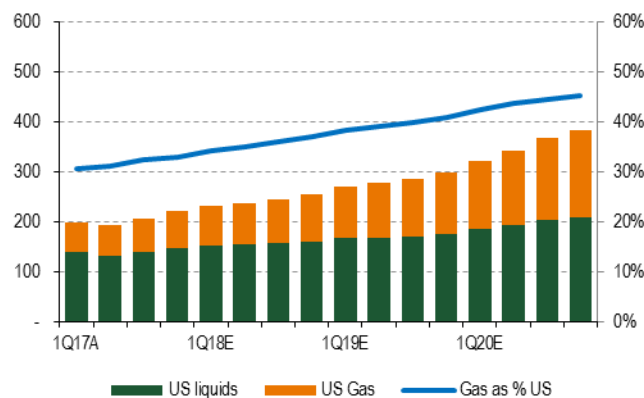
Apache's commitment to its Alpine High development continues to anchor an investment outlook that is complicated by the challenges of setting in motion a major project development, absent existing infrastructure and where the longer term outlook on realized prices has no visibility. Still, with 4Q17 earnings, management has endeavored to improve guidance, providing a medium term outlook on how production will evolve and the role that will be increasingly played by gas production as the key driver of growth. The charts below show our expectations for APA's production growth and the change in mix towards US natural gas that we anticipate through 2020.

Exhibit 1: Total production (boe) outlook



Source: APA, BofA Merrill Lynch Global Research estimates

Exhibit 2: US growth is dominated by gas mix that increases to >45%

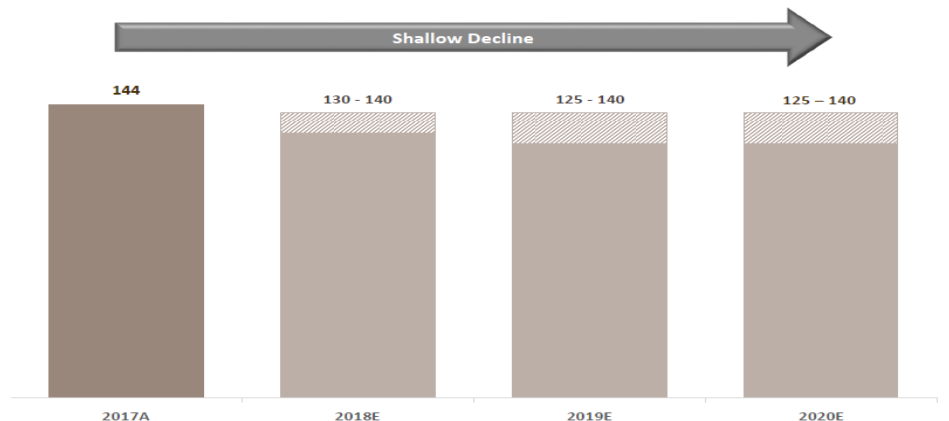


Source: APA, BofA Merrill Lynch Global Research estimates

We acknowledge that Alpine High per well costs of \$4mm-\$6mm look competitive while prospective operating costs expected around \$2/boe suggest attractive incremental returns. But when faced with a weak US natural gas price outlook and uncertain basis, we think the change in mix towards a higher proportion of gas is simply too difficult to have conviction on value, until actual prices, costs and cashflow are tangible.

New this quarter is an outlook that suggests Permian production ex Alpine High is expected to be flat, while international output, long the option on stronger Brent-based oil prices is expected to be in a moderate decline. These are the portfolio choices being made by management that in our view render the investment case as long-dated, and to management's credit, is aligned with an incentive compensation structure 50% weighted to total shareholder return.

Exhibit 3: International production now expected to decline



Source: APA

Near term, management has signaled the option to release value from its midstream investments that is a critical enabler to allow production to accelerate from the Alpine High. With potential transaction this year albeit in an as yet undisclosed structure, the potential for some near term relief to recent share price underperformance may be viewed as an option for investors while spot gas prices at ~\$2.60 begs the question of whether share performance can really get any worse.

Benchmarked against the wider sector, APA is not expensive versus our PO, which on updated guidance is trimmed slightly from \$47 to \$45 per share, shown below at our target mid-cycle multiple of 6x EV/DACF, adjusted for discrete assets in Egypt and the UK North Sea. At the same time, beyond a challenged gas price, we think APA is hardly a high risk proposition given a robust balance sheet, near 3% dividend yield and disciplined management committed to spending within cashflow.

Table 1: Apache EV/DACF Multiple valuation

Equity Value / sh	\$45							
Implied Multiple	6.0x							
	2015A	2016A	2017A	2018E	2019E	2020E	2021E	2022E
Shares	378	379	382	382	382	382	382	382
Equity Value	16,999	17,055	17,201	17,201	17,201	17,201	17,201	17,201
Net debt	7,249	7,167	6,816	6,623	6,432	6,457	5,881	5,135
Enterprise Value	24,248	24,222	24,017	23,825	23,634	23,658	23,083	22,337
DACF, as reported	2,966	2,571	2,938	4,347	4,025	4,196	4,501	4,700
Minority distribution	(129)	(293)	(343)	(524)	(456)	(432)	(435)	(438)
DACF pro forma	2,837	2,278	2,595	3,823	3,569	3,764	4,066	4,261
Egypt cashflow, net		881	958	1060	921	872	879	886
Egypt EV	5250	6.0x	5.5x	5.0x	5.7x	6.0x	6.0x	
Nsea		773	598	706	624	627	627	627
Nsea EV/DACF	1,250	1.6x	2.1x	1.8x	2.0x	2.0x	2.0x	
Residual US DACF		624	1,039	2,057	2,024	2,264	2,560	2,749
US EV/DACF	17,748	17,722	17,517	17,325	17,134	17,158	16,583	15,837
US EV/DACF		17.1x	8.5x	8.6x	7.6x	6.7x	6.0x	

Source: BofA Merrill Lynch Global Research estimates

But countering any temptation to revisit the shares on valuation alone is the relative call that compares APA with equally undervalued stocks that have a more favorable commodity transition towards oil, and it is on this basis that despite limited absolute downside, our relative call within BofAML's rating system remains Underperform, although in our view it is difficult to conceive of how things can get much worse.

Earnings recap

APA announced adj. EPS/CFPS of \$0.33/\$1.99 (pre-w/c), ahead on EPS and cash flow \$0.24/1.83 (BofAMLe \$0.0/\$2.14). At first glance, the beat versus our estimate is mainly on lower taxes.

Reported Oil and boe production of 242.6 mbod/440mboed compared to consensus of 235mbod/438mboed, but note that this had been pre-announced in early January. Adjusted for Egypt tax barrels, total production of 362mboed was slightly below our estimate of 364mboed. Permian oil and boe of 85.5mbod/177mboed compared to our estimate of 82mbod/181mboed.

Higher full-company oil was split between Permian and North Sea, where estimates were cut due to the December outage at the Forties pipeline. 2018 capital spending of \$3.0bn (flat y/y, vs. the Street at \$3.1bn) is expected to drive 7-13% full-company growth (448-469mboed) – lower than the Street, at 476mboepd. However, this looks mainly driven by International, rather than Permian, where 9% oil growth looks light versus our estimate of 20%, likely on the trend toward higher gas production growth from the Alpine High. Note, the US gas mix increased to 33% from 30% in 4Q17. Highlights from the quarter can otherwise be summarized as follows:

- 3 year plan:** APA announced a three-year capital and growth outlook of \$8.5bn (\$7.5bn for upstream /\$1.0bn for Alpine Midstream) and a production CAGR of 11-13%, but with average production in line. Spending looks better than the Street's \$9.7bn, with three year E&P spending at \$7.5bn with an additional \$1bn planned on midstream. While growth through 2020 matches our estimates for the full company, Permian growth is light (26-28% vs. 33%), offset by higher international production, which is maintained flat versus an assumed natural decline, as in our base case. Critically, when rapid growth in the Alpine high is stripped out, the balance of growth in the Permian is designed to be flat. The table below summarizes the key components of management's growth outlook.

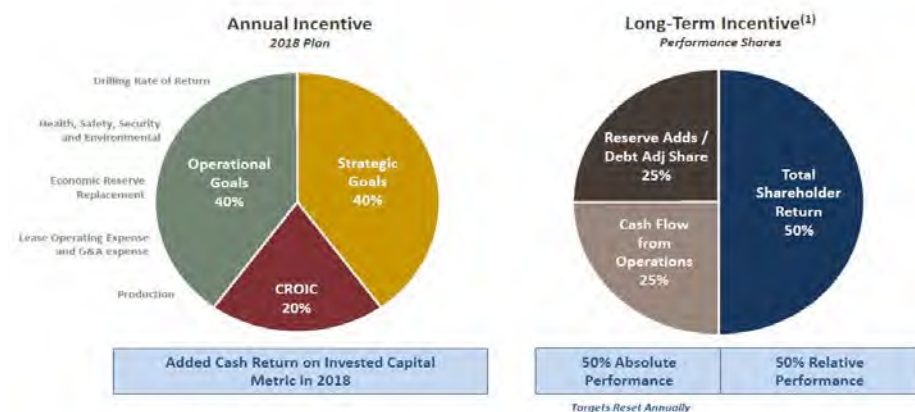
Table 2: Production guidance

	2017	2018		2019		2020	
	Actual	Low	High	Low	High	Low	High
Total company Adj production	350	375	395	410	440	475	510
Intl	144	130	140	125	140	125	140
US	206	245	255	285	300	350	370
of which Permian	158	195	205	245	260	315	335
of which Alpine High	9	40	50	85	100	160	180
Permian implied ex-Alpine High	149	155	155	160	160	155	155

Source: APA; adjusted production excludes minority and tax barrels in Egypt

- Midstream monetization:** Separately, APA continues to signal potential monetization of non-productive midstream assets, which 'could eliminate some or all of this [\$1.0bn] expected spend'. Note that \$500mm of the \$1.0bn is expected in 2018, suggesting that midstream spend is front-end loaded, which sets up for a lumpy growth profile. Management has declined to define the precise timing and structure of any asset monetization – for context, we estimate that realizing 2x its investment would be equivalent to \$6 per APA share, but noting the \$1bn spend is still ahead, for a net potential uplift of \$3, or 8% of the current share price.
- Return metrics:** APA's updated targets are accompanied by cash return on capital invested (CROCI) targets of 18%, 20% and 22% for the respective three-year period. We see this as the latest response to greater shareholder interest in disciplined capital allocation, which stems from a history of sub-par returns for the E&P sector. The company stopped short of providing an explicit increase in dividends or buybacks, but, instead, suggested that it could return 'possibly more.' On the margin, a move toward share buybacks enabled by midstream monetization would improve the relative outlook vs. peers, in our view.

Exhibit 4: APA's new compensation metrics



Source: APA

Table below summarizes 4Q17 vs. our estimate and prior-period actual results.

Table 3: APA 4Q17 Earnings Estimates (\$ in Millions, except in per share data)

	4Q17A	4Q17E	4Q16	Y/Y	3Q17	Q/Q
Segment Earnings	1,586	1,525	1,451	9%	1,575	1%
Total Rev & Non-Op Inc	(334)	(356)	(375)	-11%	(358)	-7%
Lease Operating Expense	(538)	(526)	(585)	-8%	(524)	3%
DD&A	240	(172)	(29)	-928%	12	1900%
Income Tax Expense	(168)	(471)	(804)	-79%	(593)	-72%
Other Income / Expenses	126	0	(22)	-673%	14	800%
Net Income (Adjusted)	(330)	-	160		(49)	
Special Items	456	0	(182)	-351%	63	624%
Net Income (Reported)	0.33	0.00	(0.06)	-668%	0.04	800%
Earnings (Adjusted)	1.35	0.18	(0.38)	-459%	0.27	393%
Earnings (Reported)	0.25	0.25	0.25	0%	0.25	0%
Dividend	1,586	1,525	1,451	9%	1,575	1%

Source: BofA Merrill Lynch Global Research estimates, company reports

Reflecting updated guidance, our EPS estimates change as follows: Note this includes a change in accounting treatment for gathering and transportation costs and higher DD&A, higher G&A expected in 2018, related to absorbing midstream personnel and potential non-cash compensation costs for potential retirements.

Table 4: APA Earnings Estimates

	Q1	Q2	Q3	Q4	FY	BBG Consensus
2016A	(0.83)	(0.26)	(0.03)	(0.06)	(1.18)	(0.96)
2017E	0.08	(0.21)	0.04	0.33	0.24	0.11
Previous	0.08	(0.21)	(0.03)	-	(0.15)	n/a
2018E	0.13	0.10	0.09	0.03	0.35	1.25
Previous	0.21	0.20	0.22	0.19	0.82	n/a
2019E	0.04	0.04	0.05	0.04	0.17	1.35
Previous	0.07	0.08	0.08	0.08	0.31	n/a

Source: BofA Merrill Lynch Global Research estimates, Bloomberg

Price objective basis & risk

Apache Corp (APA)

Our price objective of \$45/share is based on a five-year outlook that assumes a 6.0x DACF multiple and a commodity deck of \$56.5 WTI/\$60 Brent/\$3.00 HH. The multiple is based on a finite timeline to delivery that is supported by core NAV.

Upside risks to achieving our price objective are: higher than forecasted production and commodity prices. Downside risks to achieving our price objective are: (1) A significant portion of APA's production (22%) is in Egypt, where political risk may result in a partial or complete loss of asset value there, (2) Project timing delays could impact our growth rates, and (3) As an oil leveraged company, a weak oil price environment would affect our estimates and valuation.

Analyst Certification

I, Doug Leggate, hereby certify that the views expressed in this research report accurately reflect my personal views about the subject securities and issuers. I also certify that no part of my compensation was, is, or will be, directly or indirectly, related to the specific recommendations or view expressed in this research report.

US - Large Cap Oils Coverage Cluster

Investment rating	Company	BofA Merrill Lynch ticker	Bloomberg symbol	Analyst
BUY				
	Anadarko Petroleum Corp.	APC	APC US	Doug Leggate
	Andeavor	ANDV	ANDV US	Doug Leggate
	Cabot Oil & Gas Corp.	COG	COG US	Doug Leggate
	California Resources Corporation	CRC	CRC US	Doug Leggate
	Cimarex Energy	XEC	XEC US	Doug Leggate
	Concho Resources	CXO	CXO US	Doug Leggate
	ConocoPhillips	COP	COP US	Doug Leggate
	Continental Resources Inc.	CLR	CLR US	Doug Leggate
	Devon Energy Corp.	DVN	DVN US	Doug Leggate
	ExxonMobil Corp.	XOM	XOM US	Doug Leggate
	Hess Corp.	HES	HES US	Doug Leggate
	Marathon Oil Corp.	MRO	MRO US	Doug Leggate
	Newfield Exploration Co.	NFX	NFX US	Doug Leggate
	Noble Energy	NBL	NBL US	Doug Leggate
	Pioneer Natural Resources	PXD	PXD US	Doug Leggate
	Valero Energy Corp.	VLO	VLO US	Doug Leggate
NEUTRAL				
	Chevron Corp.	CVX	CVX US	Doug Leggate
	Delek US Holdings, Inc.	DK	DK US	Doug Leggate
	EOG Resources	EOG	EOG US	Doug Leggate
	Marathon Petroleum Company	MPC	MPC US	Doug Leggate
	Occidental Petroleum Corp.	OXY	OXY US	Doug Leggate
	Phillips 66	PSX	PSX US	Doug Leggate
	Range Resources Corp	RRC	RRC US	Doug Leggate
UNDERPERFORM				
	Apache Corp	APA	APA US	Doug Leggate
	Chesapeake Energy Corp.	CHK	CHK US	Doug Leggate
	HollyFrontier Corp	HFC	HFC US	Doug Leggate
	PBF Energy	PBF	PBF US	Doug Leggate
	Southwestern Energy Corp.	SWN	SWN US	Doug Leggate

iQmethodSM Measures Definitions

Business Performance		Numerator	Denominator
Return On Capital Employed		$\text{NOPAT} = (\text{EBIT} + \text{Interest Income}) * (1 - \text{Tax Rate}) + \text{Goodwill Amortization}$	$\text{Total Assets} - \text{Current Liabilities} + \text{ST Debt} + \text{Accumulated Goodwill Amortization}$
Return On Equity		Net Income	Shareholders' Equity
Operating Margin		Operating Profit	Sales
Earnings Growth		Expected 5-Year CAGR From Latest Actual	N/A
Free Cash Flow		Cash Flow From Operations – Total Capex	N/A
Quality of Earnings			
Cash Realization Ratio		Cash Flow From Operations	Net Income
Asset Replacement Ratio		Capex	Depreciation
Tax Rate		Tax Charge	Pre-Tax Income
Net Debt-To-Equity Ratio		$\text{Net Debt} = \text{Total Debt, Less Cash \& Equivalents}$	Total Equity
Interest Cover		EBIT	Interest Expense
Valuation Toolkit			
Price / Earnings Ratio		Current Share Price	Diluted Earnings Per Share (Basis As Specified)
Price / Book Value		Current Share Price	$\text{Shareholders' Equity} / \text{Current Basic Shares}$
Dividend Yield		Annualised Declared Cash Dividend	Current Share Price
Free Cash Flow Yield		Cash Flow From Operations – Total Capex	$\text{Market Cap.} = \text{Current Share Price} * \text{Current Basic Shares}$
Enterprise Value / Sales		$\text{EV} = \text{Current Share Price} * \text{Current Shares} + \text{Minority Equity} + \text{Net Debt} + \text{Other LT Liabilities}$	Sales
EV / EBITDA		Enterprise Value	$\text{Basic EBIT} + \text{Depreciation} + \text{Amortization}$

iQmethodSM is the set of BofA Merrill Lynch standard measures that serve to maintain global consistency under three broad headings: Business Performance, Quality of Earnings, and validations. The key features of iQmethod are: A consistently structured, detailed, and transparent methodology. Guidelines to maximize the effectiveness of the comparative valuation process, and to identify some common pitfalls.

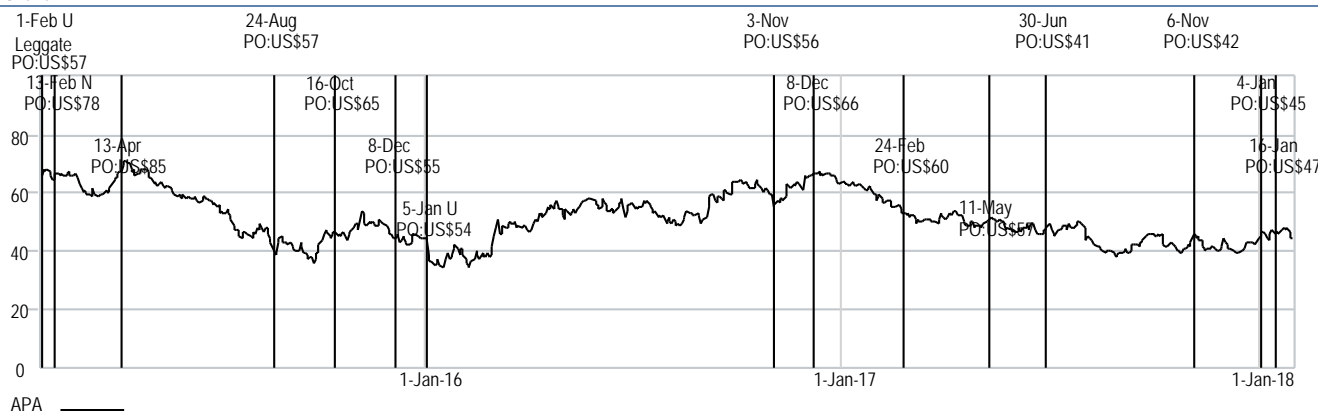
iQdatabase[®] is our real-time global research database that is sourced directly from our equity analysts' earnings models and includes forecasted as well as historical data for income statements, balance sheets, and cash flow statements for companies covered by BofA Merrill Lynch.

iQprofileSM, **iQmethodSM** are service marks of Bank of America Corporation. **iQdatabase[®]** is a registered service mark of Bank of America Corporation.

Disclosures

Important Disclosures

APA Price Chart



B: Buy, N: Neutral, U: Underperform, PO: Price Objective, NA: No longer valid, NR: No Rating

The Investment Opinion System is contained at the end of the report under the heading "Fundamental Equity Opinion Key". Dark grey shading indicates the security is restricted with the opinion suspended. Medium grey shading indicates the security is under review with the opinion withdrawn. Light grey shading indicates the security is not covered. Chart is current as of January 31, 2018 or such later date as indicated.

Equity Investment Rating Distribution: Energy Group (as of 31 Dec 2017)

Coverage Universe	Count	Percent	Inv. Banking Relationships*	Count	Percent
Buy	71	44.94%	Buy	53	74.65%
Hold	32	20.25%	Hold	24	75.00%
Sell	55	34.81%	Sell	29	52.73%

Equity Investment Rating Distribution: Global Group (as of 31 Dec 2017)

Coverage Universe	Count	Percent	Inv. Banking Relationships*	Count	Percent
Buy	1561	52.31%	Buy	975	62.46%
Hold	646	21.65%	Hold	406	62.85%
Sell	777	26.04%	Sell	372	47.88%

* Issuers that were investment banking clients of BofA Merrill Lynch or one of its affiliates within the past 12 months. For purposes of this Investment Rating Distribution, the coverage universe includes only stocks. A stock rated Neutral is included as a Hold, and a stock rated Underperform is included as a Sell.

FUNDAMENTAL EQUITY OPINION KEY: Opinions include a Volatility Risk Rating, an Investment Rating and an Income Rating. **VOLATILITY RISK RATINGS**, indicators of potential price fluctuation, are: **A - Low**, **B - Medium** and **C - High**. **INVESTMENT RATINGS** reflect the analyst's assessment of a stock's: (i) absolute total return potential and (ii) attractiveness for investment relative to other stocks within its **Coverage Cluster** (defined below). There are three investment ratings: **1 - Buy** stocks are expected to have a total return of at least 10% and are the most attractive stocks in the coverage cluster; **2 - Neutral** stocks are expected to remain flat or increase in value and are less attractive than Buy rated stocks and **3 - Underperform** stocks are the least attractive stocks in a coverage cluster. Analysts assign investment ratings considering, among other things, the 0-12 month total return expectation for a stock and the firm's guidelines for ratings dispersions (shown in the table below). The current price objective for a stock should be referenced to better understand the total return expectation at any given time. The price objective reflects the analyst's view of the potential price appreciation (depreciation).

Investment rating	Total return expectation (within 12-month period of date of initial rating)	Ratings dispersion guidelines for coverage cluster*
Buy	≥ 10%	≤ 70%
Neutral	≥ 0%	≤ 30%
Underperform	N/A	≥ 20%

* Ratings dispersions may vary from time to time where BofA Merrill Lynch Research believes it better reflects the investment prospects of stocks in a Coverage Cluster.

INCOME RATINGS, indicators of potential cash dividends, are: **7 - same/higher** (dividend considered to be secure), **8 - same/lower** (dividend not considered to be secure) and **9 - pays no cash dividend**. **Coverage Cluster** is comprised of stocks covered by a single analyst or two or more analysts sharing a common industry, sector, region or other classification(s). A stock's coverage cluster is included in the most recent BofA Merrill Lynch report referencing the stock.

Price charts for the securities referenced in this research report are available at <https://pricecharts.baml.com>, or call 1-800-MERRILL to have them mailed.

MLPF&S or one of its affiliates acts as a market maker for the equity securities recommended in the report: Apache Corp.

The issuer is or was, within the last 12 months, an investment banking client of MLPF&S and/or one or more of its affiliates: Apache Corp.

MLPF&S or an affiliate has received compensation from the issuer for non-investment banking services or products within the past 12 months: Apache Corp.

The issuer is or was, within the last 12 months, a non-securities business client of MLPF&S and/or one or more of its affiliates: Apache Corp.

MLPF&S or an affiliate has received compensation for investment banking services from this issuer within the past 12 months: Apache Corp.

MLPF&S or an affiliate expects to receive or intends to seek compensation for investment banking services from this issuer or an affiliate of the issuer within the next three months: Apache Corp.

MLPF&S or one of its affiliates is willing to sell to, or buy from, clients the common equity of the issuer on a principal basis: Apache Corp.

The issuer is or was, within the last 12 months, a securities business client (non-investment banking) of MLPF&S and/or one or more of its affiliates: Apache Corp.

BofA Merrill Lynch Research Personnel (including the analyst(s) responsible for this report) receive compensation based upon, among other factors, the overall profitability of Bank of America Corporation, including profits derived from investment banking. The analyst(s) responsible for this report may also receive compensation based upon, among other factors, the overall profitability of the Bank's sales and trading businesses relating to the class of securities or financial instruments for which such analyst is responsible.

Other Important Disclosures

From time to time research analysts conduct site visits of covered issuers. BofA Merrill Lynch policies prohibit research analysts from accepting payment or reimbursement for travel expenses from the issuer for such visits.

Prices are indicative and for information purposes only. Except as otherwise stated in the report, for the purpose of any recommendation in relation to: (i) an equity security, the price referenced is the publicly traded price of the security as of close of business on the day prior to the date of the report or, if the report is published during intraday trading, the price referenced is indicative of the traded price as of the date and time of the report; or (ii) a debt security (including equity preferred and CDS), prices are indicative as of the date and time of the report and are from various sources including Bank of America Merrill Lynch trading desks.

The date and time of completion of the production of any recommendation in this report shall be the date and time of dissemination of this report as recorded in the report timestamp.

Officers of MLPF&S or one or more of its affiliates (other than research analysts) may have a financial interest in securities of the issuer(s) or in related investments.

BofA Merrill Lynch Global Research policies relating to conflicts of interest are described at <https://go.bofa.com/coi>.

"BofA Merrill Lynch" includes Merrill Lynch, Pierce, Fenner & Smith Incorporated ("MLPF&S") and its affiliates. Investors should contact their BofA Merrill Lynch representative or Merrill Lynch Global Wealth Management financial advisor if they have questions concerning this report. "BofA Merrill Lynch" and "Merrill Lynch" are each global brands for BofA Merrill Lynch Global Research.

Information relating to Non-US affiliates of BofA Merrill Lynch and Distribution of Affiliate Research Reports:

MLPF&S distributes, or may in the future distribute, research reports of the following non-US affiliates in the US (short name: legal name, regulator): Merrill Lynch (South Africa): Merrill Lynch South Africa (Pty) Ltd., regulated by The Financial Service Board; MLI (UK): Merrill Lynch International, regulated by the Financial Conduct Authority (FCA) and the Prudential Regulation Authority (PRA); Merrill Lynch (Australia): Merrill Lynch Equities (Australia) Limited, regulated by the Australian Securities and Investments Commission; Merrill Lynch (Hong Kong): Merrill Lynch (Asia Pacific) Limited, regulated by the Hong Kong Securities and Futures Commission (HKSF); Merrill Lynch (Singapore): Merrill Lynch (Singapore) Pte Ltd, regulated by the Monetary Authority of Singapore (MAS); Merrill Lynch (Canada): Merrill Lynch Canada Inc, regulated by the Investment Industry Regulatory Organization of Canada; Merrill Lynch (Mexico): Merrill Lynch Mexico, SA de CV, Casa de Bolsa, regulated by the Comisión Nacional Bancaria y de Valores; Merrill Lynch (Argentina): Merrill Lynch Argentina SA, regulated by Comisión Nacional de Valores; Merrill Lynch (Japan): Merrill Lynch Japan Securities Co., Ltd., regulated by the Financial Services Agency; Merrill Lynch (Seoul): Merrill Lynch International, LLC Seoul Branch, regulated by the Financial Supervisory Service; Merrill Lynch (Taiwan): Merrill Lynch Securities (Taiwan) Ltd., regulated by the Securities and Futures Bureau; DSP Merrill Lynch (India): DSP Merrill Lynch Limited, regulated by the Securities and Exchange Board of India; Merrill Lynch (Indonesia): PT Merrill Lynch Sekuritas Indonesia, regulated by Otoritas Jasa Keuangan (OJK); Merrill Lynch (Israel): Merrill Lynch Israel Limited, regulated by Israel Securities Authority; Merrill Lynch (Russia): OOO Merrill Lynch Securities, Moscow, regulated by the Central Bank of the Russian Federation; Merrill Lynch (DIFC): Merrill Lynch International (DIFC Branch), regulated by the Dubai Financial Services Authority (DFSA); Merrill Lynch (Spain): Merrill Lynch Capital Markets Espana, S.A.S.V., regulated by Comisión Nacional del Mercado de Valores; Merrill Lynch (Brazil): Bank of America Merrill Lynch Banco Multiplo S.A., regulated by Comissão de Valores Mobiliários; Merrill Lynch KSA Company, Merrill Lynch Kingdom of Saudi Arabia Company, regulated by the Capital Market Authority.

This information has been approved for publication and is distributed in the United Kingdom (UK) to professional clients and eligible counterparties (as each is defined in the rules of the FCA and the PRA) by MLI (UK) and Bank of America Merrill Lynch International Limited, which are authorized by the PRA and regulated by the FCA and the PRA, and is distributed in the UK to retail clients (as defined in the rules of the FCA and the PRA) by Merrill Lynch International Bank Limited, London Branch, which is authorized by the Central Bank of Ireland and subject to limited regulation by the FCA and PRA - details about the extent of our regulation by the FCA and PRA are available from us on request; has been considered and distributed in Japan by Merrill Lynch (Japan), a registered securities dealer under the Financial Instruments and Exchange Act in Japan, or its permitted affiliates; is issued and distributed in Hong Kong by Merrill Lynch (Hong Kong) which is regulated by HKSF; is issued and distributed in Taiwan by Merrill Lynch (Taiwan); is issued and distributed in India by DSP Merrill Lynch (India); and is issued and distributed in Singapore to institutional investors and/or accredited investors (each as defined under the Financial Advisers Regulations) by Merrill Lynch International Bank Limited (Merchant Bank) (MLIBLMB) and Merrill Lynch (Singapore) (Company Registration Nos F 06872E and 198602883D respectively). MLIBLMB and Merrill Lynch (Singapore) are regulated by MAS. Bank of America N.A., Australian Branch (ABN 064 874 531), AFS License 412901 (BANA Australia) and Merrill Lynch Equities (Australia) Limited (ABN 65 006 276 795), AFS License 235132 (MLEA) distribute this information in Australia only to 'Wholesale' clients as defined by s.761G of the Corporations Act 2001. With the exception of BANA Australia, neither MLEA nor any of its affiliates involved in preparing this information is an Authorised Deposit-Taking Institution under the Banking Act 1959 nor regulated by the Australian Prudential Regulation Authority. No approval is required for publication or distribution of this information in Brazil and its local distribution is by Merrill Lynch (Brazil) in accordance with applicable regulations. Merrill Lynch (DIFC) is authorized and regulated by the DFSA. Information prepared and issued by Merrill Lynch (DIFC) is done so in accordance with the requirements of the DFSA conduct of business rules. Bank of America Merrill Lynch International Limited, Frankfurt Branch (BAMLI Frankfurt) distributes this information in Germany and is regulated by BaFin.

This information has been prepared and issued by MLPF&S and/or one or more of its non-US affiliates. The author(s) of this information may not be licensed to carry on regulated activities in your jurisdiction and, if not licensed, do not hold themselves out as being able to do so. MLPF&S is the distributor of this information in the US and accepts full responsibility for information distributed to MLPF&S clients in the US by its non-US affiliates. Any US person receiving this information and wishing to effect any transaction in any security discussed herein should do so through MLPF&S and not such foreign affiliates. Hong Kong recipients of this information should contact Merrill Lynch (Asia Pacific) Limited in respect of any matters relating to dealing in securities or provision of specific advice on securities or any other matters arising from, or in connection with, this information. Singapore recipients of this information should contact Merrill Lynch International Bank Limited (Merchant Bank) and/or Merrill Lynch (Singapore) Pte Ltd in respect of any matters arising from, or in connection with, this information.

General Investment Related Disclosures:

Taiwan Readers: Neither the information nor any opinion expressed herein constitutes an offer or a solicitation of an offer to transact in any securities or other financial instrument. No part of this report may be used or reproduced or quoted in any manner whatsoever in Taiwan by the press or any other person without the express written consent of BofA Merrill Lynch.

This document provides general information only, and has been prepared for, and is intended for general distribution to, BofA Merrill Lynch clients. Neither the information nor any opinion expressed constitutes an offer or an invitation to make an offer, to buy or sell any securities or other financial instrument or any derivative related to such securities or instruments (e.g., options, futures, warrants, and contracts for differences). This document is not intended to provide personal investment advice and it does not take into account the specific investment objectives, financial situation and the particular needs of, and is not directed to, any specific person(s). This document and its content do not constitute, and should not be considered to constitute, investment advice for purposes of ERISA, the US tax code, the Investment Advisers Act or otherwise. Investors should seek financial advice regarding the appropriateness of investing in financial instruments and implementing investment strategies discussed or recommended in this document and should understand that statements regarding future prospects may not be realized. Any decision to purchase or subscribe for securities in any offering must be based solely on existing public information on such security or the information in the prospectus or other offering document issued in connection with such offering, and not on this document.

Securities and other financial instruments referred to herein, or recommended, offered or sold by BofA Merrill Lynch, are not insured by the Federal Deposit Insurance Corporation and are not deposits or other obligations of any insured depository institution (including, Bank of America, N.A.). Investments in general and, derivatives, in particular, involve numerous risks, including, among others, market risk, counterparty default risk and liquidity risk. No security, financial instrument or derivative is suitable for all investors. In some cases, securities and other financial instruments may be difficult to value or sell and reliable information about the value or risks related to the security or financial instrument may be difficult to obtain. Investors should note that income from such securities and other financial instruments, if any, may fluctuate and that price or value of such securities and instruments may rise or fall and, in some cases, investors may lose their entire principal investment. Past performance is not necessarily a guide to future performance. Levels and basis for taxation may change.

This report may contain a short-term trading idea or recommendation, which highlights a specific near-term catalyst or event impacting the issuer or the market that is anticipated to have a short-term price impact on the equity securities of the issuer. Short-term trading ideas and recommendations are different from and do not affect a stock's fundamental equity rating, which reflects both a longer term total return expectation and attractiveness for investment relative to other stocks within its Coverage Cluster. Short-term trading ideas and recommendations may be more or less positive than a stock's fundamental equity rating.

BofA Merrill Lynch is aware that the implementation of the ideas expressed in this report may depend upon an investor's ability to "short" securities or other financial instruments and that such action may be limited by regulations prohibiting or restricting "shortselling" in many jurisdictions. Investors are urged to seek advice regarding the applicability of such regulations prior to executing any short idea contained in this report.

Foreign currency rates of exchange may adversely affect the value, price or income of any security or financial instrument mentioned in this report. Investors in such securities and instruments, including ADRs, effectively assume currency risk.

UK Readers: The protections provided by the U.K. regulatory regime, including the Financial Services Scheme, do not apply in general to business coordinated by BofA Merrill Lynch entities

located outside of the United Kingdom. BofA Merrill Lynch Global Research policies relating to conflicts of interest are described at <https://go.bofa.com/coi>.

MLPF&S or one of its affiliates is a regular issuer of traded financial instruments linked to securities that may have been recommended in this report. MLPF&S or one of its affiliates may, at any time, hold a trading position (long or short) in the securities and financial instruments discussed in this report.

BofA Merrill Lynch, through business units other than BofA Merrill Lynch Global Research, may have issued and may in the future issue trading ideas or recommendations that are inconsistent with, and reach different conclusions from, the information presented in this report. Such ideas or recommendations reflect the different time frames, assumptions, views and analytical methods of the persons who prepared them, and BofA Merrill Lynch is under no obligation to ensure that such other trading ideas or recommendations are brought to the attention of any recipient of this report.

In the event that the recipient received this information pursuant to a contract between the recipient and MLPF&S for the provision of research services for a separate fee, and in connection therewith MLPF&S may be deemed to be acting as an investment adviser, such status relates, if at all, solely to the person with whom MLPF&S has contracted directly and does not extend beyond the delivery of this report (unless otherwise agreed specifically in writing by MLPF&S). If such recipient uses the services of MLPF&S in connection with the sale or purchase of a security referred to herein, MLPF&S may act as principal for its own account or as agent for another person. MLPF&S is and continues to act solely as a broker-dealer in connection with the execution of any transactions, including transactions in any securities referred to herein.

Copyright and General Information regarding Research Reports:

Copyright 2018 Bank of America Corporation. All rights reserved. iQmethod, iQmethod 2.0, iQprofile, iQtoolkit, iQworks are service marks of Bank of America Corporation. iQanalytics®, iQcustom®, iQdatabase® are registered service marks of Bank of America Corporation. This research report is prepared for the use of BofA Merrill Lynch clients and may not be redistributed, retransmitted or disclosed, in whole or in part, or in any form or manner, without the express written consent of BofA Merrill Lynch. BofA Merrill Lynch Global Research reports are distributed simultaneously to internal and client websites and other portals by BofA Merrill Lynch and are not publicly-available materials. Any unauthorized use or disclosure is prohibited. Receipt and review of this research report constitutes your agreement not to redistribute, retransmit, or disclose to others the contents, opinions, conclusion, or information contained in this report (including any investment recommendations, estimates or price targets) without first obtaining expressed permission from an authorized officer of BofA Merrill Lynch.

Materials prepared by BofA Merrill Lynch Global Research personnel are based on public information. Facts and views presented in this material have not been reviewed by, and may not reflect information known to, professionals in other business areas of BofA Merrill Lynch, including investment banking personnel. BofA Merrill Lynch has established information barriers between BofA Merrill Lynch Global Research and certain business groups. As a result, BofA Merrill Lynch does not disclose certain client relationships with, or compensation received from, such issuers in research reports. To the extent this report discusses any legal proceeding or issues, it has not been prepared as nor is it intended to express any legal conclusion, opinion or advice. Investors should consult their own legal advisers as to issues of law relating to the subject matter of this report. BofA Merrill Lynch Global Research personnel's knowledge of legal proceedings in which any BofA Merrill Lynch entity and/or its directors, officers and employees may be plaintiffs, defendants, co-defendants or co-plaintiffs with or involving issuers mentioned in this report is based on public information. Facts and views presented in this material that relate to any such proceedings have not been reviewed by, discussed with, and may not reflect information known to, professionals in other business areas of BofA Merrill Lynch in connection with the legal proceedings or matters relevant to such proceedings.

This report has been prepared independently of any issuer of securities mentioned herein and not in connection with any proposed offering of securities or as agent of any issuer of any securities. None of MLPF&S, any of its affiliates or their research analysts has any authority whatsoever to make any representation or warranty on behalf of the issuer(s). BofA Merrill Lynch Global Research policy prohibits research personnel from disclosing a recommendation, investment rating, or investment thesis for review by an issuer prior to the publication of a research report containing such rating, recommendation or investment thesis.

Any information relating to the tax status of financial instruments discussed herein is not intended to provide tax advice or to be used by anyone to provide tax advice. Investors are urged to seek tax advice based on their particular circumstances from an independent tax professional.

The information herein (other than disclosure information relating to BofA Merrill Lynch and its affiliates) was obtained from various sources and we do not guarantee its accuracy. This report may contain links to third-party websites. BofA Merrill Lynch is not responsible for the content of any third-party website or any linked content contained in a third-party website. Content contained on such third-party websites is not part of this report and is not incorporated by reference into this report. The inclusion of a link in this report does not imply any endorsement by or any affiliation with BofA Merrill Lynch. Access to any third-party website is at your own risk, and you should always review the terms and privacy policies at third-party websites before submitting any personal information to them. BofA Merrill Lynch is not responsible for such terms and privacy policies and expressly disclaims any liability for them.

Subject to the quiet period applicable under laws of the various jurisdictions in which we distribute research reports and other legal and BofA Merrill Lynch policy-related restrictions on the publication of research reports, fundamental equity reports are produced on a regular basis as necessary to keep the investment recommendation current.

Certain outstanding reports may contain discussions and/or investment opinions relating to securities, financial instruments and/or issuers that are no longer current. Always refer to the most recent research report relating to an issuer prior to making an investment decision.

In some cases, an issuer may be classified as Restricted or may be Under Review or Extended Review. In each case, investors should consider any investment opinion relating to such issuer (or its security and/or financial instruments) to be suspended or withdrawn and should not rely on the analyses and investment opinion(s) pertaining to such issuer (or its securities and/or financial instruments) nor should the analyses or opinion(s) be considered a solicitation of any kind. Sales persons and financial advisors affiliated with MLPF&S or any of its affiliates may not solicit purchases of securities or financial instruments that are Restricted or Under Review and may only solicit securities under Extended Review in accordance with firm policies.

Neither BofA Merrill Lynch nor any officer or employee of BofA Merrill Lynch accepts any liability whatsoever for any direct, indirect or consequential damages or losses arising from any use of this report or its contents.

Exhibit 8

Apache Corp.

Bank of America
Merrill Lynch

APA monetizing Alpine High midstream, though not an outright sale; U/G to MW

Rating Change - Credit

08 August 2018

APA and Kayne Anderson to create Altus Midstream

Earlier this afternoon, Apache Corporation (APA) and Kayne Anderson Acquisition Corp (KAAC) announced an agreement pursuant to which APA will contribute its midstream assets in Alpine High to Altus Midstream LP, a partnership jointly owned by Apache and KAAC (which will become Altus Midstream Company when the transaction closes). Altus Midstream will be structured as a C-corp anchored by substantially all of APA's gathering, processing, and transportation assets in the Alpine High and APA's equity participation in five gas, NGL, and crude oil pipeline projects from the Permian Basin to various points along the Texas Gulf Coast. KAAC will contribute \$920mm of cash to the Altus, which will be raised through a public offering and private placement. In total, Altus Midstream is expected to have a market cap of \$3.5b and will be 71% owned by APA (option for ownership to grow to 74% if certain share price and operational thresholds are met over the next five years). Due to the ownership interest and control, APA will consolidate Altus Midstream in its financial statements.

High Grade Credit
United States
Oil & Gas

Daniel Lungo
Research Analyst
MLPF&S
+1 646 855 9965
daniel.e.lungo@baml.com

Some positives to the transaction, some negatives

From the APA perspective, this transaction provides a number of positives including: the capital provided by KAAC will fund its midstream infrastructure buildout in the near term, maintain APA's control over its midstream infrastructure buildout, and provide APA an opportunity to participate in the stock price appreciation of the midstream company (ability for APA to monetize in the future). Although these positives are apparent, the fact that APA will consolidate Altus Midstream in its financials means that APA will not be eliminating its yearly FCF outspend due to infrastructure spending and, once Altus burns through its original cash balance, all debt at the midstream entity will roll up to APA and affect leverage (though the debt will be non-recourse to APA).

View transaction positively; U/G notes to MW on rel val

Overall we view this transaction slightly positively from a fundamental perspective, but note that an outright sale would likely have warranted a more positive reaction in the outstanding bonds as it would have simplified the story and would have allowed for other uses of the incoming cash. Nonetheless, we are upgrading our recommendation on the outstanding APA notes to Marketweight from Underweight given the fundamental positives of the transaction and our view that APA now trades at fair value to its peers (5-15 bps back of peers, CLR, CXO, MRO, and NBL, in the long end of the curve). We note that we continue to view APA's growth strategy centered on the Alpine High negatively given that we believe APA will continue to struggle with price realizations, especially natural gas price realizations, but now believe that investors are fairly compensated for this risk.

BofA Merrill Lynch does and seeks to do business with issuers covered in its research reports. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision.

Refer to important disclosures on page 3 to 6. Analyst Certification on page 2. Valuation & Risk on page 2.

11903398

Timestamp: 08 August 2018 08:32PM EDT

CR

Valuation & risk

Apache Corp. (APA)

Apache Corporation (APA) is an oil and gas exploration and production company that operates through segments based on geography. APA has a large asset base with high quality unconventional acreage positions in the U.S. and also benefits from its international diversity. Management has also been financially prudent in maintaining a strong balance sheet through non-core asset monetization. However, the company remains one of the highest cost producers in our HG coverage group with the fourteenth highest breakeven cost in 2017 at \$46.94 per boe which resulted from its very high reserve replacement costs. We view the APA's recent monetization of its midstream assets positively, but note that its flagship development in Alpine High still poses significant execution risk on top of being a predominantly wet gas play based on early results. We continue to view APA's growth strategy centered on the Alpine High negatively given that we believe APA will continue to struggle with price realizations, especially natural gas price realizations, but now believe that investors are fairly compensated for this risk. Risks to our recommendation are: volatility in oil, natural gas, and NGL prices, changes in its capex program that either stress or relieve cash flow estimates, debt-funded acquisitions, better or worse than expected results from the Alpine High, and shareholder friendly activities that strain cash flows such as share repurchases and dividend increases.

Analyst Certification

I, Daniel Lungo, hereby certify that the views expressed in this research report accurately reflect my personal views about the subject securities and issuers. I also certify that no part of my compensation was, is, or will be, directly or indirectly, related to the specific recommendations or view expressed in this research report.

Security pricing

Apache Corp. / APA

Security	Amt	Maturity date	Ratings Moody's/S&P/Fitch	Price	Price date	Yield (%)	Spread (bps)
2.625, Senior, USD, 2023:B	528	15-JAN-2023	Baa3/BBB/BBB	95.33	07-Aug-2018	3.78	93
4.25, Senior, USD, 2044:B	754	15-JAN-2044	Baa3/BBB/BBB	89.07	07-Aug-2018	5.02	190
6.9, Senior, USD, 2018:B	400	15-SEP-2018	Baa3/BBB/BBB	100.42	07-Aug-2018	2.69	64
6, Senior, USD, 2037:B	1,000	15-JAN-2037	Baa3/BBB/BBB	109.29	07-Aug-2018	5.21	215
5.1, Senior, USD, 2040:B	1,499	01-SEP-2040	Baa3/BBB/BBB	98.43	07-Aug-2018	5.22	212
5.25, Senior, USD, 2042:B	500	01-FEB-2042	Baa3/BBB/BBB	100.09	07-Aug-2018	5.24	214
3.625, Senior, USD, 2021:B	493	01-FEB-2021	Baa3/BBB/BBB	100.19	07-Aug-2018	3.54	85
3.25, Senior, USD, 2022:B	814	15-APR-2022	Baa3/BBB/BBB	98.60	07-Aug-2018	3.66	85
4.75, Senior, USD, 2043:B	1,413	15-APR-2043	Baa3/BBB/BBB	94.86	07-Aug-2018	5.12	201

For pricing information refer to "Other Important Disclosures" below.

B=Bond; CS=Capital Security (Not including Equity Preferred); CDS=Credit Default Swap; EP=Equity Preferred

Disclosures

Important Disclosures

Credit opinion history

Apache Corp. / APA

Company	Date^	Action	Recommendation	Price
Apache Corp. / APA	31-Jul-2015		Underw eight-30%	
	09-Nov-2015	Rating Sy stem Change	Marketw eight	
	13-Oct-2017	Extended Review	NA	
	11-Dec-2017	Cov erage Reinstatement	Underw eight	
Security	Date^	Action	Recommendation	Price
2.625, Senior, USD, 2023:B	31-Jul-2017		Marketw eight	
	13-Oct-2017	Extended Review	NA	NA
	11-Dec-2017	Cov erage Reinstatement	Underw eight	97.78
4.25, Senior, USD, 2044:B	31-Jul-2017		Marketw eight	
	13-Oct-2017	Extended Review	NA	NA
	11-Dec-2017	Cov erage Reinstatement	Underw eight	97.02
6.9, Senior, USD, 2018:B	31-Jul-2017		Underw eight-70%	
	11-Dec-2017	Initial	Underw eight	103.70
6, Senior, USD, 2037:B	31-Jul-2017		Underw eight-70%	
	11-Dec-2017	Initial	Underw eight	118.63
5.1, Senior, USD, 2040:B	31-Jul-2017		Underw eight-70%	
	11-Dec-2017	Cov erage Reinstatement	Underw eight	106.86
5.25, Senior, USD, 2042:B	31-Jul-2017		Underw eight-30%	
	11-Dec-2017	Initial	Underw eight	108.01
3.625, Senior, USD, 2021:B	31-Jul-2017		Underw eight-30%	
	11-Dec-2017	Initial	Underw eight	102.60
3.25, Senior, USD, 2022:B	31-Jul-2017		Marketw eight	
	13-Oct-2017	Extended Review	NA	
	11-Dec-2017	Cov erage Reinstatement	Underw eight	100.64
4.75, Senior, USD, 2043:B	31-Jul-2017		Marketw eight	
	13-Oct-2017	Extended Review	NA	
	11-Dec-2017	Cov erage Reinstatement	Underw eight	103.82

Table reflects credit opinion history as of previous business day's close. ^First date of recommendation within the last 36 months, if for an issuer or within the last 12 months, if for a security. Prior to November 9, 2015, the investment opinion system included Overweight-100%, Overweight-70%, Overweight-30%, Underweight-30%, Underweight-70% and Underweight-100%. As of November 9, 2015, the investment opinion system is contained at the end of the report under the heading "BofA Merrill Lynch Credit Opinion Key."

Pricing information in the table is provided for each action occurring after July 2, 2016, where available. In the case of bonds, capital securities and equity preferreds, the price shown reflects the nominal cash price for the security; and in the case of CDS, the price shown reflects the spread, on the date of the relevant action.

B=Bond; CS=Capital Security (Not including Equity Preferred); EP=Equity Preferred; CDS=Credit Default Swap

BofA Merrill Lynch Credit Opinion Key

BofA Merrill Lynch Global Research provides recommendations on an issuer's bonds (including corporate and sovereign external debt securities), capital securities, equity preferreds and CDS as described below. Convertible securities are not rated. An issuer level recommendation may also be provided for an issuer as explained below. BofA Merrill Lynch Global Research credit recommendations are assigned using a three-month time horizon.

Issuer Recommendations: If an issuer credit recommendation is provided, it is applicable to bonds and capital securities of the issuer except bonds and capital securities specifically referenced in the report with a different credit recommendation. Where there is no issuer credit recommendation, only individual bonds and capital securities with specific recommendations are covered. CDS and equity preferreds are rated separately and issuer recommendations do not apply to them.

BofA Merrill Lynch Global Research credit recommendations are assigned using a three-month time horizon:

Overweight: Spreads and /or excess returns are likely to outperform the relevant and comparable market over the next three months.

Marketweight: Spreads and/or excess returns are likely to perform in-line with the relevant and comparable market over the next three months.

Underweight: Spreads and/or excess returns are likely to underperform the relevant and comparable market over the next three months.

BofA Merrill Lynch Global Research uses the following rating system with respect to **Credit Default Swaps (CDS)**:

Buy Protection: Buy CDS, therefore going short credit risk.

Neutral: No purchase or sale of CDS is recommended.

Sell Protection: Sell CDS, therefore going long credit risk.

Corporate Credit Issuer Investment Rating Distribution: Global Group (as of 30 Jun 2018)

Coverage Universe	Count	Percent	Inv. Banking Relationships*	Count	Percent
Buy	120	33.52%	Buy	103	85.83%
Hold	174	48.60%	Hold	135	77.59%
Sell	64	17.88%	Sell	52	81.25%

* Issuers that were investment banking clients of BofA Merrill Lynch or one of its affiliates within the past 12 months. For purposes of this Investment Rating Distribution, the coverage universe includes only corporate credit issuer recommendations. A corporate credit issuer rated Overweight is included as a Buy, a corporate credit issuer rated Marketweight is included as a Hold, and a corporate credit issuer rated Underweight is included as a Sell.

Credit Opinion History Tables for the securities referenced in this research report are available at <https://pricecharts.baml.com>, or call 1-800-MERRILL to have them mailed.

The issuer is or was, within the last 12 months, an investment banking client of MLPF&S and/or one or more of its affiliates: Apache Corp.

MLPF&S or an affiliate has received compensation from the issuer for non-investment banking services or products within the past 12 months: Apache Corp.

The issuer is or was, within the last 12 months, a non-securities business client of MLPF&S and/or one or more of its affiliates: Apache Corp.

MLPF&S or an affiliate has received compensation for investment banking services from this issuer within the past 12 months: Apache Corp.

MLPF&S or an affiliate expects to receive or intends to seek compensation for investment banking services from this issuer or an affiliate of the issuer within the next three months: Apache Corp.

MLPF&S or one of its affiliates trades or may trade as principal in the debt securities (or in related derivatives) that are the subject of this research report: Apache Corp.

The issuer is or was, within the last 12 months, a securities business client (non-investment banking) of MLPF&S and/or one or more of its affiliates: Apache Corp.

BofA Merrill Lynch Research Personnel (including the analyst(s) responsible for this report) receive compensation based upon, among other factors, the overall profitability of Bank of America Corporation, including profits derived from investment banking. The analyst(s) responsible for this report may also receive compensation based upon, among other factors, the overall profitability of the Bank's sales and trading businesses relating to the class of securities or financial instruments for which such analyst is responsible.

BofA Merrill Lynch fixed income analysts regularly interact with sales and trading desk personnel in connection with their research, including to ascertain pricing and liquidity in the fixed income markets.

Other Important Disclosures

From time to time research analysts conduct site visits of covered issuers. BofA Merrill Lynch policies prohibit research analysts from accepting payment or reimbursement for travel expenses from the issuer for such visits.

Prices are indicative and for information purposes only. Except as otherwise stated in the report, for the purpose of any recommendation in relation to: (i) an equity security, the price referenced is the publicly traded price of the security as of close of business on the day prior to the date of the report or, if the report is published during intraday trading, the price referenced is indicative of the traded price as of the date and time of the report; or (ii) a debt security (including equity preferred and CDS), prices are indicative as of the date and time of the report and are from various sources including Bank of America Merrill Lynch trading desks.

The date and time of completion of the production of any recommendation in this report shall be the date and time of dissemination of this report as recorded in the report timestamp.

This report may refer to fixed income securities that may not be offered or sold in one or more states or jurisdictions. Readers of this report are advised that any discussion, recommendation or other mention of such securities is not a solicitation or offer to transact in such securities. Investors should contact their BofA Merrill Lynch representative or Merrill Lynch Global Wealth Management financial advisor for information relating to fixed income securities.

Rule 144A securities may be offered or sold only to persons in the U.S. who are Qualified Institutional Buyers within the meaning of Rule 144A under the Securities Act of 1933, as amended. SECURITIES DISCUSSED HEREIN MAY BE RATED BELOW INVESTMENT GRADE AND SHOULD THEREFORE ONLY BE CONSIDERED FOR INCLUSION IN ACCOUNTS QUALIFIED FOR SPECULATIVE INVESTMENT.

Recipients who are not institutional investors or market professionals should seek the advice of their independent financial advisor before considering information in this report in connection with any investment decision, or for a necessary explanation of its contents.

The securities discussed in this report may be traded over-the-counter. Retail sales and/or distribution of this report may be made only in states where these securities are exempt from registration or have been qualified for sale.

Officers of MLPF&S or one or more of its affiliates (other than research analysts) may have a financial interest in securities of the issuer(s) or in related investments.

This report, and the securities discussed herein, may not be eligible for distribution or sale in all countries or to certain categories of investors.

Information relating to Affiliates of MLPF&S and Distribution of Affiliate Research Reports:

"BofA Merrill Lynch" includes Merrill Lynch, Pierce, Fenner & Smith Incorporated ("MLPF&S") and its affiliates. Investors should contact their BofA Merrill Lynch representative or Merrill Lynch Global Wealth Management financial advisor if they have questions concerning this report. "BofA Merrill Lynch" and "Merrill Lynch" are each global brands for BofA Merrill Lynch Global Research.

MLPF&S distributes, or may in the future distribute, information of the following non-US affiliates in the US (short name: legal name, regulator): Merrill Lynch (South Africa): Merrill Lynch South Africa (Pty) Ltd., regulated by The Financial Service Board; MLI (UK): Merrill Lynch International, regulated by the Financial Conduct Authority (FCA) and the Prudential Regulation Authority (PRA); Merrill Lynch (Australia): Merrill Lynch Equities (Australia) Limited, regulated by the Australian Securities and Investments Commission; Merrill Lynch (Hong Kong): Merrill Lynch (Asia Pacific) Limited, regulated by the Hong Kong Securities and Futures Commission (HKSF); Merrill Lynch (Singapore): Merrill Lynch (Singapore) Pte Ltd, regulated by the Monetary Authority of Singapore (MAS); Merrill Lynch (Canada): Merrill Lynch Canada Inc, regulated by the Investment Industry Regulatory Organization of Canada; Merrill Lynch (Mexico): Merrill Lynch Mexico, SA de CV, Casa de Bolsa, regulated by the Comisión Nacional Bancaria y de Valores; Merrill Lynch (Argentina): Merrill Lynch Argentina SA, regulated by Comisión Nacional de Valores; Merrill Lynch (Japan): Merrill Lynch Japan Securities Co., Ltd., regulated by the Financial Services Agency; Merrill Lynch (Seoul): Merrill Lynch International, LLC Seoul Branch, regulated by the Financial Supervisory Service; Merrill Lynch (Taiwan): Merrill Lynch Securities (Taiwan) Ltd., regulated by the Securities and Futures Bureau; DSP Merrill Lynch (India): DSP Merrill Lynch Limited, regulated by the Securities and Exchange Board of India; Merrill Lynch (Indonesia): PT Merrill Lynch Sekuritas Indonesia, regulated by Otoritas Jasa Keuangan (OJK); Merrill Lynch (Israel): Merrill Lynch Israel Limited, regulated by Israel Securities Authority; Merrill Lynch (Russia): OOO Merrill Lynch Securities, Moscow, regulated by the Central Bank of the Russian Federation; Merrill Lynch (DIFC): Merrill Lynch International (DIFC Branch), regulated by the Dubai Financial Services Authority (DFSA); Merrill Lynch (Spain): Merrill Lynch Capital Markets Espana, S.A.S.V., regulated by Comisión Nacional del Mercado de Valores; Merrill Lynch (Brazil): Bank of America Merrill Lynch Banco Multiplo S.A., regulated by Comissão de Valores Mobiliários; Merrill Lynch KSA Company, Merrill Lynch Kingdom of Saudi Arabia Company, regulated by the Capital Market Authority.

This information: has been approved for publication and is distributed in the United Kingdom (UK) to professional clients and eligible counterparties (as each is defined in the rules of the FCA and the PRA) by MLI (UK) and Bank of America Merrill Lynch International Limited, which are authorized by the PRA and regulated by the FCA and the PRA, and is distributed in the UK to retail clients (as defined in the rules of the FCA and the PRA) by Merrill Lynch International Bank Limited, London Branch, which is authorized by the Central Bank of Ireland and subject to limited

regulation by the FCA and PRA - details about the extent of our regulation by the FCA and PRA are available from us on request; has been considered and distributed in Japan by Merrill Lynch (Japan), a registered securities dealer under the Financial Instruments and Exchange Act in Japan, or its permitted affiliates; is issued and distributed in Hong Kong by Merrill Lynch (Hong Kong) which is regulated by HKSCF is issued and distributed in Taiwan by Merrill Lynch (Taiwan); is issued and distributed in India by DSP Merrill Lynch (India); and is issued and distributed in Singapore to institutional investors and/or accredited investors (each as defined under the Financial Advisers Regulations) by Merrill Lynch International Bank Limited (Merchant Bank) (MLIBLMB) and Merrill Lynch (Singapore) (Company Registration Nos F 06872E and 198602883D respectively). MLIBLMB and Merrill Lynch (Singapore) are regulated by MAS. Bank of America N.A., Australian Branch (ARBN 064 874 531), AFS License 412901 (BANA Australia) and Merrill Lynch Equities (Australia) Limited (ABN 65 006 276 795), AFS License 235132 (MLEA) distribute this information in Australia only to "Wholesale" clients as defined by s.761G of the Corporations Act 2001. With the exception of BANA Australia, neither MLEA nor any of its affiliates involved in preparing this information is an Authorised Deposit-Taking Institution under the Banking Act 1959 nor regulated by the Australian Prudential Regulation Authority. No approval is required for publication or distribution of this information in Brazil and its local distribution is by Merrill Lynch (Brazil) in accordance with applicable regulations. Merrill Lynch (DIFC) is authorized and regulated by the DFSA. Information prepared and issued by Merrill Lynch (DIFC) is done so in accordance with the requirements of the DFSA conduct of business rules. Bank of America Merrill Lynch International Limited, Frankfurt Branch (BAMLI Frankfurt) distributes this information in Germany and is regulated by BaFin.

This information has been prepared and issued by MLPF&S and/or one or more of its non-US affiliates. The author(s) of this information may not be licensed to carry on regulated activities in your jurisdiction and, if not licensed, do not hold themselves out as being able to do so. MLPF&S is the distributor of this information in the US and accepts full responsibility for information distributed to MLPF&S clients in the US by its non-US affiliates. Any US person receiving this information and wishing to effect any transaction in any security discussed herein should do so through MLPF&S and not such foreign affiliates. Hong Kong recipients of this information should contact Merrill Lynch (Asia Pacific) Limited in respect of any matters relating to dealing in securities or provision of specific advice on securities or any other matters arising from, or in connection with, this information. Singapore recipients of this information should contact Merrill Lynch International Bank Limited (Merchant Bank) and/or Merrill Lynch (Singapore) Pte Ltd in respect of any matters arising from, or in connection with, this information.

General Investment Related Disclosures:

Taiwan Readers: Neither the information nor any opinion expressed herein constitutes an offer or a solicitation of an offer to transact in any securities or other financial instrument. No part of this report may be used or reproduced or quoted in any manner whatsoever in Taiwan by the press or any other person without the express written consent of BofA Merrill Lynch.

This document provides general information only, and has been prepared for, and is intended for general distribution to, BofA Merrill Lynch clients. Neither the information nor any opinion expressed constitutes an offer or an invitation to make an offer, to buy or sell any securities or other financial instrument or any derivative related to such securities or instruments (e.g., options, futures, warrants, and contracts for differences). This document is not intended to provide personal investment advice and it does not take into account the specific investment objectives, financial situation and the particular needs of, and is not directed to, any specific person(s). This document and its content do not constitute, and should not be considered to constitute, investment advice for purposes of ERISA, the US tax code, the Investment Advisers Act or otherwise. Investors should seek financial advice regarding the appropriateness of investing in financial instruments and implementing investment strategies discussed or recommended in this document and should understand that statements regarding future prospects may not be realized. Any decision to purchase or subscribe for securities in any offering must be based solely on existing public information on such security or the information in the prospectus or other offering document issued in connection with such offering, and not on this document.

Securities and other financial instruments referred to herein, or recommended, offered or sold by BofA Merrill Lynch, are not insured by the Federal Deposit Insurance Corporation and are not deposits or other obligations of any insured depository institution (including, Bank of America, N.A.). Investments in general and, derivatives, in particular, involve numerous risks, including, among others, market risk, counterparty default risk and liquidity risk. No security, financial instrument or derivative is suitable for all investors. In some cases, securities and other financial instruments may be difficult to value or sell and reliable information about the value or risks related to the security or financial instrument may be difficult to obtain. Investors should note that income from such securities and other financial instruments, if any, may fluctuate and that price or value of such securities and instruments may rise or fall and, in some cases, investors may lose their entire principal investment. Past performance is not necessarily a guide to future performance. Levels and basis for taxation may change.

BofA Merrill Lynch is aware that the implementation of the ideas expressed in this report may depend upon an investor's ability to "short" securities or other financial instruments and that such action may be limited by regulations prohibiting or restricting "shortselling" in many jurisdictions. Investors are urged to seek advice regarding the applicability of such regulations prior to executing any short idea contained in this report.

This report may contain a trading idea or recommendation which highlights a specific identified near-term catalyst or event impacting a security, issuer, industry sector or the market generally that presents a transaction opportunity, but does not have any impact on the analyst's particular "Overweight" or "Underweight" rating (which is based on a three month trade horizon). Trading ideas and recommendations may differ directionally from the analyst's rating on a security or issuer because they reflect the impact of a near-term catalyst or event.

Foreign currency rates of exchange may adversely affect the value, price or income of any security or financial instrument mentioned in this report. Investors in such securities and instruments effectively assume currency risk.

UK Readers: The protections provided by the U.K. regulatory regime, including the Financial Services Scheme, do not apply in general to business coordinated by BofA Merrill Lynch entities located outside of the United Kingdom. BofA Merrill Lynch Global Research policies relating to conflicts of interest are described at <https://go.bofa.com/coi>.

MLPF&S or one of its affiliates is a regular issuer of traded financial instruments linked to securities that may have been recommended in this report. MLPF&S or one of its affiliates may, at any time, hold a trading position (long or short) in the securities and financial instruments discussed in this report.

BofA Merrill Lynch, through business units other than BofA Merrill Lynch Global Research, may have issued and may in the future issue trading ideas or recommendations that are inconsistent with, and reach different conclusions from, the information presented herein. Such ideas or recommendations reflect the different time frames, assumptions, views and analytical methods of the persons who prepared them, and BofA Merrill Lynch is under no obligation to ensure that such other trading ideas or recommendations are brought to the attention of any recipient of this information.

In the event that the recipient received this information pursuant to a contract between the recipient and MLPF&S for the provision of research services for a separate fee, and in connection therewith MLPF&S may be deemed to be acting as an investment adviser, such status relates, if at all, solely to the person with whom MLPF&S has contracted directly and does not extend beyond the delivery of this report (unless otherwise agreed specifically in writing by MLPF&S). If such recipient uses the services of MLPF&S in connection with the sale or purchase of a security referred to herein, MLPF&S may act as principal for its own account or as agent for another person. MLPF&S is and continues to act solely as a broker-dealer in connection with the execution of any transactions, including transactions in any securities referred to herein.

Copyright, User Agreement and other general information related to this report:

Copyright 2018 Bank of America Corporation. All rights reserved. iQprofileSM, iQmethodSM are service marks of Bank of America Corporation. iQdatabase[®] is a registered service mark of Bank of America Corporation. This information is prepared for the use of BofA Merrill Lynch clients and may not be redistributed, retransmitted or disclosed, in whole or in part, in any form or manner, without the express written consent of BofA Merrill Lynch. BofA Merrill Lynch Global Research information is distributed simultaneously to internal and client websites and other portals by BofA Merrill Lynch and is not publicly-available material. Any unauthorized use or disclosure is prohibited. Receipt and review of this information constitutes your agreement not to redistribute, retransmit, or disclose to others the contents, opinions, conclusion, or information contained herein (including any investment recommendations, estimates or price targets) without first obtaining express permission from an authorized officer of BofA Merrill Lynch.

Materials prepared by BofA Merrill Lynch Global Research personnel are based on public information. Facts and views presented in this material have not been reviewed by, and may not reflect information known to, professionals in other business areas of BofA Merrill Lynch, including investment banking personnel. BofA Merrill Lynch has established information barriers between BofA Merrill Lynch Global Research and certain business groups. As a result, BofA Merrill Lynch does not disclose certain client relationships with, or compensation received from, such issuers. To the extent this material discusses any legal proceeding or issues, it has not been prepared as nor is it intended to express any legal conclusion, opinion or advice. Investors should consult their own legal advisers as to issues of law relating to the subject matter of this material. BofA Merrill Lynch Global Research personnel's knowledge of legal proceedings in which any BofA Merrill Lynch entity and/or its directors, officers and employees may be plaintiffs, defendants, co-defendants or co-plaintiffs with or involving issuers mentioned in this material is based on public information. Facts and views presented in this material that relate to any such proceedings have not been reviewed by, discussed with, and may not reflect information known to, professionals in other business areas of BofA Merrill Lynch in connection with the legal proceedings or matters relevant to such proceedings.

This information has been prepared independently of any issuer of securities mentioned herein and not in connection with any proposed offering of securities or as agent of any issuer of any securities. None of MLPF&S, any of its affiliates or their research analysts has any authority whatsoever to make any representation or warranty on behalf of the issuer(s). BofA Merrill Lynch Global Research policy prohibits research personnel from disclosing a recommendation, investment rating, or investment thesis for review by an issuer prior to the publication of a research report containing such rating, recommendation or investment thesis.

Any information relating to the tax status of financial instruments discussed herein is not intended to provide tax advice or to be used by anyone to provide tax advice. Investors are urged to seek tax advice based on their particular circumstances from an independent tax professional.

The information herein (other than disclosure information relating to BofA Merrill Lynch and its affiliates) was obtained from various sources and we do not guarantee its accuracy. This information may contain links to third-party websites. BofA Merrill Lynch is not responsible for the content of any third-party website or any linked content contained in a third-party website. Content contained on such third-party websites is not part of this information and is not incorporated by reference. The inclusion of a link does not imply any endorsement by or any affiliation with BofA Merrill Lynch. Access to any third-party website is at your own risk, and you should always review the terms and privacy policies at third-party websites before submitting any personal information to them. BofA Merrill Lynch is not responsible for such terms and privacy policies and expressly disclaims any liability for them.

All opinions, projections and estimates constitute the judgment of the author as of the date of publication and are subject to change without notice. Prices also are subject to change without notice. BofA Merrill Lynch is under no obligation to update this information and BofA Merrill Lynch's ability to publish information on the subject issuer(s) in the future is subject to applicable quiet periods. You should therefore assume that BofA Merrill Lynch will not update any fact, circumstance or opinion contained herein.

Subject to the quiet period applicable under laws of the various jurisdictions in which we distribute research reports and other legal and BofA Merrill Lynch policy-related restrictions on the publication of research reports, fundamental equity reports are produced on a regular basis as necessary to keep the investment recommendation current.

Certain outstanding reports may contain discussions and/or investment opinions relating to securities, financial instruments and/or issuers that are no longer current. Always refer to the most recent research report relating to an issuer prior to making an investment decision.

In some cases, an issuer may be classified as Restricted or may be Under Review or Extended Review. In each case, investors should consider any investment opinion relating to such issuer (or its security and/or financial instruments) to be suspended or withdrawn and should not rely on the analyses and investment opinion(s) pertaining to such issuer (or its securities and/or financial instruments) nor should the analyses or opinion(s) be considered a solicitation of any kind. Sales persons and financial advisors affiliated with MLPF&S or any of its affiliates may not solicit purchases of securities or financial instruments that are Restricted or Under Review and may only solicit securities under Extended Review in accordance with firm policies.

Neither BofA Merrill Lynch nor any officer or employee of BofA Merrill Lynch accepts any liability whatsoever for any direct, indirect or consequential damages or losses arising from any use of this information.

Exhibit 9



24 January 2019
Americas/United States
Equity Research
Oil & Gas Exploration & Production

Rating **NEUTRAL**
Price (24-Jan-19, US\$) 31.84
Target price (US\$) 36.00
52-week price range (US\$) 49.30 - 25.40
Market cap(US\$ m) 12,085
Enterprise value (US\$ m) 21,213

Target price is for 12 months.

Research Analysts

William Featherston

212 325 6283

william.featherston@credit-suisse.com

William Janela, CFA

212 325 2646

william.janela@credit-suisse.com

Michael Ziffer, CFA

212 538 0568

michael.ziffer@credit-suisse.com

Christopher Zhang, CFA

212 325 4431

chris.zhang@credit-suisse.com

Apache Corporation (APA)

FORECAST REDUCTION

Lowering 4Q CFPS on Weak Price Realizations

- **Discloses markedly worse than expected 4Q oil and gas price realizations.** APA released estimated 4Q US/International average realized oil prices (\$/Bbl) of \$51.82/\$63.69, NGL prices (\$/Bbl) of \$23.81/\$39.77, and natural gas prices (\$/Mcf) of \$2.03/\$3.65 (all well below our expectations except international gas). The average oil, NGL, and natural gas realizations were 7%, 6%, and 3% below prior CSe. In addition, APA expects dry hole expense to be \$80-\$85MM, above prior CSe due to ~\$54MM for historical exploration investments in the North Sea APA no longer plans to develop.
- **We lowered our 4Q18 EPS/CFPS forecasts from \$0.45/\$2.45 to \$0.23/\$2.14** (well below current consensus of \$0.38/\$2.49), driven by the much weaker than expected price realizations. We trimmed 2019-20E CFPS by ~2% on modestly wider NGL & Waha gas differentials. While this is just one quarter (and a quarter with very volatile oil & gas prices), it does highlight APA's vulnerability to wider gas/NGL differentials in 1H19 until its gas realizations benefit from its takeaway capacity on Gulf Coast Express (online in 4Q19) and NGLs benefit from 3 cryogenic plants coming on later this year.
- **More conservative 2019 guidance fairly well telegraphed.** APA will likely reduce its initial 2019 upstream budget of \$3.0 billion (disclosed in November and based on high-\$50s/Bbl WTI), as it appears firmly committed to funding both capex and the dividend within cash flow this year assuming +/- \$50/Bbl. We forecast lower upstream capex of ~\$2.5 billion, enabling full year volumes of ~507 MBoed (within the initial 484-514 MBoed guidance range, although shy of APA's prior expectations to come in at the high-end). Our 2019 production forecast of 507 MBoed and 248 MBbld are near consensus of 501 MBoed and 247 MBbld, respectively. At current strip prices (~\$54/Bbl WTI), we see APA delivering a modest 'upstream' FCF surplus (after dividends); including midstream spend (it owns 79% of publicly traded Altus Midstream) in consolidated financials, the FCF deficit is >\$1 billion.
- **Fully valued vs. peers.** Our \$36 TP is based on ~5.6x normalized 2019E EV/DACF, in line with historical avg. Risks: Permian gas diffs, execution.

Share price performance



On 24-Jan-2019 the S&P 500 INDEX closed at 2642.33
Daily Jan25, 2018 - Jan24, 2019, 01/25/18 = US\$47.45

Quarterly CFPS	Q1	Q2	Q3	Q4
2017A	1.57	1.34	1.54	1.83
2018E	1.76	2.07	2.27	2.14
2019E	2.13	1.85	2.04	2.08

Financial and valuation metrics

Year	12/17A	12/18E	12/19E	12/20E
EBITDX (US\$ m)	3,784.0	4,888.3	4,206.3	4,822.5
CFPS (US\$)	6.26	8.25	8.10	9.40
Prev. CFPS (US\$)	-	8.55	8.30	9.60
DACF	2,559.9	3,422.7	3,450.6	3,967.6
EPS (CS Adj.) (US\$)	0.24	1.69	0.60	1.30
ROACE (%)	0.02	0.06	0.03	0.05
EV/EBITDX	5.3	4.1	4.8	4.2
EV/DACF	7.9	5.9	5.9	5.1
Net debt (US\$ m)	8,148	9,128	10,642	11,284
Dividend (current qtr., US\$)	384.3	Dividend yield (%)		3.1
Net debt (current, US\$)	9,128.4	Net debt/Cap (%)		0.54
NAV/share (12/18E, US\$ m)	64.85	Net debt/EBITDX (x)		1.87
P/NAV (x)	0.5	Number of shares (m)		379.5
Free float (%)	91.5			

Source: Company data, Thomson Reuters, Credit Suisse estimates

DISCLOSURE APPENDIX AT THE BACK OF THIS REPORT CONTAINS IMPORTANT DISCLOSURES, ANALYST CERTIFICATIONS, LEGAL ENTITY DISCLOSURE AND THE STATUS OF NON-US ANALYSTS. US Disclosure: Credit Suisse does and seeks to do business with companies covered in its research reports. As a result, investors should be aware that the Firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision.

Apache Corporation (APA)

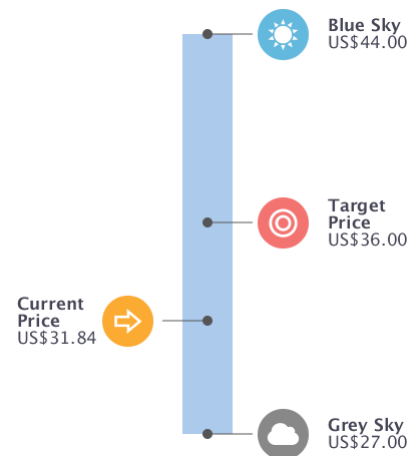
Price (24 Jan 2019): **US\$31.84**; Rating: **NEUTRAL**; Target Price: **36.00**; Analyst: **William Featherston**

Income Statement	12/17A	12/18E	12/19E	12/20E
EBITDX (US\$ m)	3,784	4,888	4,206	4,823
DACF	2,560	3,423	3,451	3,968
Net interest income (exp)	397	386	385	385
Net non operating inc (exp)	0	0	(5)	5
Share of associates/JVs' equity	-	-	-	-
Exceptionals	0	0	(5)	5
Profit before tax (US\$ m)	620	1,697	848	1,190
Taxes	330	781	373	469
Profit after tax	290	917	475	721
Extraordinary gain/(loss)	0	0	0	0
Non-controlling interest (minority)	-	-	-	-
Preferred dividends	-	-	-	-
Adjusted net income (US\$ m)	290	917	475	721
Cash Flow	12/17A	12/18E	12/19E	12/20E
Change in working capital	(320)	3	0	0
Other cash and non-cash items	1,731	1,425	1,901	2,075
Cash flow from operations	2,428	3,511	3,139	3,645
Capex	(2,582)	(3,642)	(3,925)	(3,584)
Acquisitions	(178)	(96)	(100)	(100)
Divestments	-	-	-	-
Other investment/(outflows)	-	-	-	-
Cashflow from investment	(1,416)	(3,742)	(4,025)	(3,684)
Operating cash flow	2,428.0	3,511.0	3,138.8	3,644.8
Balance Sheet	12/17A	12/18E	12/19E	12/20E
Cash and cash equivalents	3,725	2,620	1,666	1,172
Other current assets	0	0	0	0
Total current assets	3,725	2,620	1,666	1,172
Total fixed assets	17,759	18,913	20,331	21,150
Other assets	438	439	439	439
Total assets	21,922	21,972	22,437	22,761
Total current liabilities	2,564	2,207	2,207	2,207
Long-term debt	7,934	8,207	8,767	8,916
Other Liabilities	2,633	2,717	3,016	3,290
Total liabilities	13,131	13,131	13,990	14,413
Shareholders' equity	7,416	7,507	7,112	7,014
Minority interest	1,375	1,334	1,334	1,334
Total equity and liabilities	21,922	21,972	22,437	22,761
Per share	12/17A	12/18E	12/19E	12/20E
Equiv. FPO (period Avg.) (mn)	383.00	384.58	385.07	388.07
CFPS (US\$)	6.26	8.25	8.10	9.40
Prev. CFPS (US\$)	-	8.55	8.30	9.60
DPS (US\$)	0.99	1.00	1.00	1.00
Total Production	12/17A	12/18E	12/19E	12/20E
Total Production (MBoed)	456.6	467.7	506.8	555.4
Oil Production (MBbld)	244.3	244.6	248.3	247.4
NGL Production (MBbld)	52.8	60.7	67.4	92.9
Gas Production (MMcfd)	957.6	974.7	1,146.5	1,290.3
Valuation	12/17A	12/18E	12/19E	12/20E
Dividend yield (%)	3.1	3.1	3.1	3.1
FCF yield (%)	3.5	(8.6)	0.3	1.3
EV/EBITDX (x)	5.3	4.1	4.8	4.2
Returns	12/17A	12/18E	12/19E	12/20E
ROE (%)	0.01	0.09	0.03	0.07
ROACE (avg.) (%)	0.02	0.06	0.03	0.05
Gearing	12/17A	12/18E	12/19E	12/20E
Net debt/Cap (%)	92.7	103.2	126.0	135.2
Interest coverage ratio (X)	2.6	5.4	3.2	4.1

Company Background

Apache is an oil and gas exploration and production company engaged in the acquisition, exploration, development, and production of oil and gas in the onshore US, Gulf of Mexico, Egypt, and North Sea.

Blue/Grey Sky Scenario



Our Blue Sky Scenario (US\$)

44.00

Our Blue Sky Scenario assumes a flat \$10/Bbl and \$0.25/MMBtu premium to the Credit Suisse price deck. Under this scenario, APA would be worth \$44/sh. However, we note that at these oil and gas prices, APA would be generating additional free cash flow versus our base case. This extra cash would allow the company to accelerate drilling activity which could provide additional upside.

Our Grey Sky Scenario (US\$)

27.00

Our Grey Sky Scenario assumes a \$10/Bbl and \$0.25/MMBtu discount to the Credit Suisse price deck. Under this scenario, APA would be worth \$27/sh. However, we note that at these oil and gas prices, APA would be generating less free cash flow which could mean lower drilling activity than our base case. Under this scenario, value would be deferred and further downside could be warranted.

Share price performance



On 24-Jan-2019 the S&P 500 INDEX closed at 2642.33
Daily Jan25, 2018 - Jan24, 2019, 01/25/18 = US\$47.45

Source: Company data, Thomson Reuters, Credit Suisse estimates

Companies Mentioned (Price as of 24-Jan-2019)**Apache Corporation** (APA.N, \$31.84, NEUTRAL, TP \$36.0)**Disclosure Appendix****Analyst Certification**

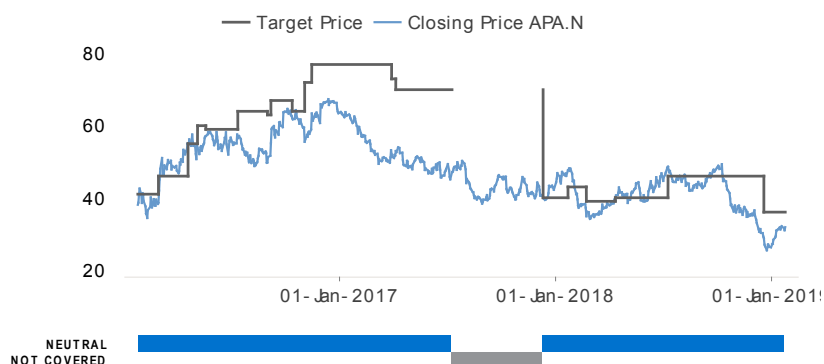
I, William Featherston, certify that (1) the views expressed in this report accurately reflect my personal views about all of the subject companies and securities and (2) no part of my compensation was, is or will be directly or indirectly related to the specific recommendations or views expressed in this report.

3-Year Price and Rating History for Apache Corporation (APA.N)

APA.N	Closing Price	Target Price	
Date	(US\$)	(US\$)	Rating
26-Jan-16	38.03	41.00	N
01-Mar-16	38.62	46.00	
20-Apr-16	54.68	55.00	
06-May-16	53.84	60.00	
20-May-16	57.11	59.00	
13-Jul-16	56.54	64.00	
01-Sep-16	49.79	63.00	
07-Sep-16	55.13	67.00	
13-Oct-16	62.07	64.00	
03-Nov-16	55.52	72.00	
15-Nov-16	63.39	77.00	
30-Mar-17	52.09	73.00	
06-Apr-17	52.96	70.00	
10-Jul-17	47.11		NC
11-Dec-17	40.19	40.00	N *
22-Jan-18	47.66	43.00	
22-Feb-18	34.85	39.00	
12-Apr-18	39.38	40.00	
10-Jul-18	48.61	46.00	
19-Dec-18	28.75	36.00	

* Asterisk signifies initiation or assumption of coverage.

Effective July 3, 2016, NC denotes termination of coverage.

**As of December 10, 2012 Analysts' stock rating are defined as follows:**

Outperform (O) : The stock's total return is expected to outperform the relevant benchmark* over the next 12 months.

Neutral (N) : The stock's total return is expected to be in line with the relevant benchmark* over the next 12 months.

Underperform (U) : The stock's total return is expected to underperform the relevant benchmark* over the next 12 months.

*Relevant benchmark by region: As of 10th December 2012, Japanese ratings are based on a stock's total return relative to the analyst's coverage universe which consists of all companies covered by the analyst within the relevant sector, with Outperforms representing the most attractive, Neutrals the less attractive, and Underperforms the least attractive investment opportunities. As of 2nd October 2012, U.S. and Canadian as well as European ratings are based on a stock's total return relative to the analyst's coverage universe which consists of all companies covered by the analyst within the relevant sector, with Outperforms representing the most attractive, Neutrals the less attractive, and Underperforms the least attractive investment opportunities. For Latin American and Asia stocks (excluding Japan and Australia), ratings are based on a stock's total return relative to the average total return of the relevant country or regional benchmark (India - S&P BSE Sensex Index); prior to 2nd October 2012 U.S. and Canadian ratings were based on (1) a stock's absolute total return potential to its current share price and (2) the relative attractiveness of a stock's total return potential within an analyst's coverage universe. For Australian and New Zealand stocks, the expected total return (ETR) calculation includes 12-month rolling dividend yield. An Outperform rating is assigned where an ETR is greater than or equal to 7.5%; Underperform where an ETR less than or equal to 5%. A Neutral may be assigned where the ETR is between -5% and 15%. The overlapping rating range allows analysts to assign a rating that puts ETR in the context of associated risks. Prior to 18 May 2015, ETR ranges for Outperform and Underperform ratings did not overlap with Neutral thresholds between 15% and 7.5%, which was in operation from 7 July 2011.

Restricted (R) : In certain circumstances, Credit Suisse policy and/or applicable law and regulations preclude certain types of communications, including an investment recommendation, during the course of Credit Suisse's engagement in an investment banking transaction and in certain other circumstances.

Not Rated (NR) : Credit Suisse Equity Research does not have an investment rating or view on the stock or any other securities related to the company at this time.

Not Covered (NC) : Credit Suisse Equity Research does not provide ongoing coverage of the company or offer an investment rating or investment view on the equity security of the company or related products.

Volatility Indicator [V] : A stock is defined as volatile if the stock price has moved up or down by 20% or more in a month in at least 8 of the past 24 months or the analyst expects significant volatility going forward.

Analysts' sector weightings are distinct from analysts' stock ratings and are based on the analyst's expectations for the fundamentals and/or valuation of the sector* relative to the group's historic fundamentals and/or valuation:

Overweight : The analyst's expectation for the sector's fundamentals and/or valuation is favorable over the next 12 months.

Market Weight : The analyst's expectation for the sector's fundamentals and/or valuation is neutral over the next 12 months.

Underweight : The analyst's expectation for the sector's fundamentals and/or valuation is cautious over the next 12 months.

**An analyst's coverage sector consists of all companies covered by the analyst within the relevant sector. An analyst may cover multiple sectors.*

Credit Suisse's distribution of stock ratings (and banking clients) is:

Global Ratings Distribution

Rating	Versus universe (%)	Of which banking clients (%)
Outperform/Buy*	48%	(33% banking clients)
Neutral/Hold*	38%	(28% banking clients)
Underperform/Sell*	12%	(20% banking clients)
Restricted	2%	

**For purposes of the NYSE and FINRA ratings distribution disclosure requirements, our stock ratings of Outperform, Neutral, and Underperform most closely correspond to Buy, Hold, and Sell, respectively; however, the meanings are not the same, as our stock ratings are determined on a relative basis. (Please refer to definitions above.) An investor's decision to buy or sell a security should be based on investment objectives, current holdings, and other individual factors.*

Important Global Disclosures

Credit Suisse's research reports are made available to clients through our proprietary research portal on CS PLUS. Credit Suisse research products may also be made available through third-party vendors or alternate electronic means as a convenience. Certain research products are only made available through CS PLUS. The services provided by Credit Suisse's analysts to clients may depend on a specific client's preferences regarding the frequency and manner of receiving communications, the client's risk profile and investment, the size and scope of the overall client relationship with the Firm, as well as legal and regulatory constraints. To access all of Credit Suisse's research that you are entitled to receive in the most timely manner, please contact your sales representative or go to <https://plus.credit-suisse.com>.

Credit Suisse's policy is to update research reports as it deems appropriate, based on developments with the subject company, the sector or the market that may have a material impact on the research views or opinions stated herein.

Credit Suisse's policy is only to publish investment research that is impartial, independent, clear, fair and not misleading. For more detail please refer to Credit Suisse's Policies for Managing Conflicts of Interest in connection with Investment Research: <https://www.credit-suisse.com/sites/disclaimers-ib/en/managing-conflicts.html>.

Credit Suisse does not provide any tax advice. Any statement herein regarding any US federal tax is not intended or written to be used, and cannot be used, by any taxpayer for the purposes of avoiding any penalties.

Credit Suisse has decided not to enter into business relationships with companies that Credit Suisse has determined to be involved in the development, manufacture, or acquisition of anti-personnel mines and cluster munitions. For Credit Suisse's position on the issue, please see <https://www.credit-suisse.com/media/assets/corporate/docs/about-us/responsibility/banking/policy-summaries-en.pdf>.

The analyst(s) responsible for preparing this research report received compensation that is based upon various factors including Credit Suisse's total revenues, a portion of which are generated by Credit Suisse's investment banking activities

Target Price and Rating

Valuation Methodology and Risks: (12 months) for Apache Corporation (APA.N)

Method: Our 12-month target price of \$36 per share for Apache Corp. assumes the stock trades to ~5.5x normalized 2019E DACF, modestly below its historical average and a half turn discount to the peer average target multiple. Our Neutral rating is a function of total shareholder return over the next twelve months and the relative risk/reward versus our coverage universe.

Risk: We see several risks to APA achieving our \$36 TP and our Neutral rating. APA has >10% of its production coming from Egypt, where political, social and economic conditions in the country could significantly worsen, and may lead to a reduction in the company's production, profits and stock price. In general, oil and gas companies are subject to changes in global commodity supply/demand, as well as geopolitical related issues that could adversely affect the company's ability to achieve our TP and could potentially lower our Rating.

Please refer to the firm's disclosure website at <https://rave.credit-suisse.com/disclosures/view/selectArchive> for the definitions of abbreviations typically used in the target price method and risk sections.

See the Companies Mentioned section for full company names

Credit Suisse currently has, or had within the past 12 months, the following as investment banking client(s): APA.N

Credit Suisse provided investment banking services to the subject company (APA.N) within the past 12 months.

Within the last 12 months, Credit Suisse has received compensation for non-investment banking services or products from the following issuer(s): APA.N

Credit Suisse has managed or co-managed a public offering of securities for the subject company (APA.N) within the past 12 months.

Within the past 12 months, Credit Suisse has received compensation for investment banking services from the following issuer(s): APA.N

Credit Suisse expects to receive or intends to seek investment banking related compensation from the subject company (APA.N) within the next 3 months.

Credit Suisse currently has, or had within the past 12 months, the following issuer(s) as client(s), and the services provided were non-investment-banking, non securities-related: APA.N

Credit Suisse or a member of the Credit Suisse Group is a market maker or liquidity provider in the securities of the following subject issuer(s): APA.N

A member of the Credit Suisse Group is party to an agreement with, or may have provided services set out in sections A and B of Annex I of Directive 2014/65/EU of the European Parliament and Council ("MiFID Services") to, the subject issuer (APA.N) within the past 12 months.

For date and time of production, dissemination and history of recommendation for the subject company(ies) featured in this report, disseminated within the past 12 months, please refer to the link: <https://rave.credit-suisse.com/disclosures/view/report?i=404539&v=-4inykrt1ixrqlt0drwagjgrv>.

Important Regional Disclosures

Singapore recipients should contact Credit Suisse AG, Singapore Branch for any matters arising from this research report.

The analyst(s) involved in the preparation of this report may participate in events hosted by the subject company, including site visits. Credit Suisse does not accept or permit analysts to accept payment or reimbursement for travel expenses associated with these events.

Restrictions on certain Canadian securities are indicated by the following abbreviations: NVS--Non-Voting shares; RVS--Restricted Voting Shares; SVS--Subordinate Voting Shares.

Individuals receiving this report from a Canadian investment dealer that is not affiliated with Credit Suisse should be advised that this report may not contain regulatory disclosures the non-affiliated Canadian investment dealer would be required to make if this were its own report.

For Credit Suisse Securities (Canada), Inc.'s policies and procedures regarding the dissemination of equity research, please visit <https://www.credit-suisse.com/sites/disclaimers-ib/en/canada-research-policy.html>.

Principal is not guaranteed in the case of equities because equity prices are variable.

Commission is the commission rate or the amount agreed with a customer when setting up an account or at any time after that.

This research report is authored by:

Credit Suisse Securities (USA) LLCWilliam Featherston ; William Janela, CFA ; Michael Ziffer, CFA ; Christopher Zhang, CFA

Important disclosures regarding companies that are the subject of this report are available by calling +1 (877) 291-2683. The same important disclosures, with the exception of valuation methodology and risk discussions, are also available on Credit Suisse's disclosure website at <https://rave.credit-suisse.com/disclosures>. For valuation methodology and risks associated with any recommendation, price target, or rating referenced in this report, please refer to the disclosures section of the most recent report regarding the subject company.



24 January 2019

This report is produced by subsidiaries and affiliates of Credit Suisse operating under its Global Markets Division. For more information on our structure, please use the following link: <https://www.credit-suisse.com/who-we-are>. This report may contain material that is not directed to, or intended for distribution to or use by, any person or entity who is a citizen or resident of or located in any locality, state, country or other jurisdiction where such distribution, publication, availability or use would be contrary to law or regulation or which would subject Credit Suisse or its affiliates ("CS") to any registration or licensing requirement within such jurisdiction. All material presented in this report, unless specifically indicated otherwise, is under copyright to CS. None of the material, nor its content, nor any copy of it, may be altered in any way, transmitted to, copied or distributed to any other party, without the prior express written permission of CS. All trademarks, service marks and logos used in this report are trademarks or service marks or registered trademarks or service marks of CS or its affiliates. The information, tools and material presented in this report are provided to you for information purposes only and are not to be used or considered as an offer or the solicitation of an offer to sell or to buy or subscribe for securities or other financial instruments. CS may not have taken any steps to ensure that the securities referred to in this report are suitable for any particular investor. CS will not treat recipients of this report as its customers by virtue of their receiving this report. The investments and services contained or referred to in this report may not be suitable for you and it is recommended that you consult an independent investment advisor if you are in doubt about such investments or investment services. Nothing in this report constitutes investment, legal, accounting or tax advice, or a representation that any investment or strategy is suitable or appropriate to your individual circumstances, or otherwise constitutes a personal recommendation to you. CS does not advise on the tax consequences of investments and you are advised to contact an independent tax adviser. Please note in particular that the bases and levels of taxation may change. Information and opinions presented in this report have been obtained or derived from sources believed by CS to be reliable, but CS makes no representation as to their accuracy or completeness. CS accepts no liability for loss arising from the use of the material presented in this report, except that this exclusion of liability does not apply to the extent that such liability arises under specific statutes or regulations applicable to CS. This report is not to be relied upon in substitution for the exercise of independent judgment. CS may have issued, and may in the future issue, other communications that are inconsistent with, and reach different conclusions from, the information presented in this report. Those communications reflect the different assumptions, views and analytical methods of the analysts who prepared them and CS is under no obligation to ensure that such other communications are brought to the attention of any recipient of this report. Some investments referred to in this report will be offered solely by a single entity and in the case of some investments solely by CS, or an associate of CS or CS may be the only market maker in such investments. Past performance should not be taken as an indication or guarantee of future performance, and no representation or warranty, express or implied, is made regarding future performance. Information, opinions and estimates contained in this report reflect a judgment at its original date of publication by CS and are subject to change without notice. The price, value of and income from any of the securities or financial instruments mentioned in this report can fall as well as rise. The value of securities and financial instruments is subject to exchange rate fluctuation that may have a positive or adverse effect on the price or income of such securities or financial instruments. Investors in securities such as ADRs, the values of which are influenced by currency volatility, effectively assume this risk. Structured securities are complex instruments, typically involve a high degree of risk and are intended for sale only to sophisticated investors who are capable of understanding and assuming the risks involved. The market value of any structured security may be affected by changes in economic, financial and political factors (including, but not limited to, spot and forward interest and exchange rates), time to maturity, market conditions and volatility, and the credit quality of any issuer or reference issuer. Any investor interested in purchasing a structured product should conduct their own investigation and analysis of the product and consult with their own professional advisers as to the risks involved in making such a purchase. Some investments discussed in this report may have a high level of volatility. High volatility investments may experience sudden and large falls in their value causing losses when that investment is realised. Those losses may equal your original investment. Indeed, in the case of some investments the potential losses may exceed the amount of initial investment and, in such circumstances, you may be required to pay more money to support those losses. Income yields from investments may fluctuate and, in consequence, initial capital paid to make the investment may be used as part of that income yield. Some investments may not be readily realisable and it may be difficult to sell or realise those investments, similarly it may prove difficult for you to obtain reliable information about the value, or risks, to which such an investment is exposed. This report may provide the addresses of, or contain hyperlinks to, websites. Except to the extent to which the report refers to website material of CS, CS has not reviewed any such site and takes no responsibility for the content contained therein. Such address or hyperlink (including addresses or hyperlinks to CS's own website material) is provided solely for your convenience and information and the content of any such website does not in any way form part of this document. Accessing such website or following such link through this report or CS's website shall be at your own risk.

This report is issued and distributed in **European Union (except Switzerland)**: by Credit Suisse Securities (Europe) Limited, One Cabot Square, London E14 4QJ, England, which is authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority. **Germany**: Credit Suisse (Deutschland) Aktiengesellschaft regulated by the Bundesanstalt fuer Finanzdienstleistungsaufsicht ("BaFin"). **United States and Canada**: Credit Suisse Securities (USA) LLC; **Switzerland**: Credit Suisse AG; **Brazil**: Banco de Investimentos Credit Suisse (Brasil) SA or its affiliates; **Mexico**: Banco Credit Suisse (México), S.A., Institución de Banca Múltiple, Grupo Financiero Credit Suisse (México) and Casa de Bolsa Credit Suisse (México), S.A. de C.V., Grupo Financiero Credit Suisse (México) ("Credit Suisse Mexico"). This document has been prepared for information purposes only and is exclusively distributed in Mexico to Institutional Investors. Credit Suisse Mexico is not responsible for any onward distribution of this report to non-institutional investors by any third party. The authors of this report have not received payment or compensation from any entity or company other than from the relevant Credit Suisse Group company employing them; **Japan**: by Credit Suisse Securities (Japan) Limited, Financial Instruments Firm, Director-General of Kanto Local Finance Bureau (Kinsho) No. 66, a member of Japan Securities Dealers Association, The Financial Futures Association of Japan, Japan Investment Advisers Association, Type II Financial Instruments Firms Association; **Hong Kong**: Credit Suisse (Hong Kong) Limited; **Australia**: Credit Suisse Equities (Australia) Limited; **Thailand**: Credit Suisse Securities (Thailand) Limited, regulated by the Office of the Securities and Exchange Commission, Thailand, having registered address at 990 Abdulrahim Place, 27th Floor, Unit 2701, Rama IV Road, Silom, Bangkok, Bangkok 10500, Thailand, Tel. +66 2614 6000; **Malaysia**: Credit Suisse Securities (Malaysia) Sdn Bhd; **Singapore**: Credit Suisse AG, Singapore Branch; **India**: Credit Suisse Securities (India) Private Limited (CIN no.U67120MH1996PTC104392) regulated by the Securities and Exchange Board of India as Research Analyst (registration no. INH 000001030) and as Stock Broker (registration no. INB230970637; INF230970637; INF010970631; INF010970631), having registered address at 9th Floor, Ceejay House, Dr.A.B. Road, Worli, Mumbai - 18, India, T. +91-22 6777 3777; **South Korea**: Credit Suisse Securities (Europe) Limited, Seoul Branch; **Taiwan**: Credit Suisse AG Taipei Securities Branch; **Indonesia**: PT Credit Suisse Sekuritas Indonesia; **Philippines**: Credit Suisse Securities (Philippines) Inc., and elsewhere in the world by the relevant authorised affiliate of the above.

Additional Regional Disclaimers

Australia: Credit Suisse Securities (Europe) Limited ("CSSEL") and Credit Suisse International ("CSI") are authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority ("FCA") and the Prudential Regulation Authority under UK laws, which differ from Australian Laws. CSSEL and CSI do not hold an Australian Financial Services Licence ("AFSL") and are exempt from the requirement to hold an AFSL under the Corporations Act (Cth) 2001 ("Corporations Act") in respect of the financial services provided to Australian wholesale clients (within the meaning of section 761G of the Corporations Act) (hereinafter referred to as "Financial Services"). This material is not for distribution to retail clients and is directed exclusively at Credit Suisse's professional clients and eligible counterparties as defined by the FCA, and wholesale clients as defined under section 761G of the Corporations Act. Credit Suisse (Hong Kong) Limited ("CSHK") is licensed and regulated by the Securities and Futures Commission of Hong Kong under the laws of Hong Kong, which differ from Australian laws. CSHK does not hold an AFSL and is exempt from the requirement to hold an AFSL under the Corporations Act in respect of providing Financial Services. Investment banking services in the United States are provided by Credit Suisse Securities (USA) LLC, an affiliate of Credit Suisse Group. CSSU is regulated by the United States Securities and Exchange Commission under United States laws, which differ from Australian laws. CSSU does not hold an AFSL and is exempt from the requirement to hold an AFSL under the Corporations Act in respect of providing Financial Services. Credit Suisse Asset Management LLC (CSAM) is authorised by the Securities and Exchange Commission under US laws, which differ from Australian laws. CSAM does not hold an AFSL and is exempt from the requirement to hold an AFSL under the Corporations Act in respect of providing Financial Services. This material is provided solely to Institutional Accounts (as defined in the FINRA rules) who are Eligible Contract Participants (as defined in the US Commodity Exchange Act). Credit Suisse Equities (Australia) Limited (ABN 35 068 232 708) ("CSEAL") is an AFSL holder in Australia (AFSL 237237).

Malaysia: Research provided to residents of Malaysia is authorised by the Head of Research for Credit Suisse Securities (Malaysia) Sdn Bhd, to whom they should direct any queries on +603 2723 2020.

Singapore: This report has been prepared and issued for distribution in Singapore to institutional investors, accredited investors and expert investors (each as defined under the Financial Advisers Regulations) only, and is also distributed by Credit Suisse AG, Singapore Branch to overseas investors (as defined under the Financial Advisers Regulations). Credit Suisse AG, Singapore Branch may distribute reports produced by its foreign entities or affiliates pursuant to an arrangement under Regulation 32C of the Financial Advisers Regulations. Singapore recipients should contact Credit Suisse AG, Singapore Branch at +65-6212-2000 for matters arising from, or in connection with, this report. By virtue of your status as an institutional investor, accredited investor, expert investor or overseas investor, Credit Suisse AG, Singapore Branch is exempted from complying with certain compliance requirements under the Financial Advisers Act, Chapter 110 of Singapore (the "FAA"), the Financial Advisers Regulations and the relevant Notices and Guidelines issued thereunder, in respect of any financial advisory service which Credit Suisse AG, Singapore Branch may provide to you.

EU: This report has been produced by subsidiaries and affiliates of Credit Suisse operating under its Global Markets Division

In jurisdictions where CS is not already registered or licensed to trade in securities, transactions will only be effected in accordance with applicable securities legislation, which will vary from jurisdiction to jurisdiction and may require that the trade be made in accordance with applicable exemptions from registration or licensing requirements.

This material is issued and distributed in the U.S. by CSSU, a member of NYSE, FINRA, SIPC and the NFA, and CSSU accepts responsibility for its contents. Clients should contact analysts and execute transactions through a Credit Suisse subsidiary or affiliate in their home jurisdiction unless governing law permits otherwise.

Please note that this research was originally prepared and issued by CS for distribution to their market professional and institutional investor customers. Recipients who are not market professional or institutional investor customers of CS should seek the advice of their independent financial advisor prior to taking any investment decision based on this report or for any necessary explanation of its contents. This research may relate to investments or services of a person outside of the UK or to other matters which are not authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority or in respect of which the protections of the Prudential Regulation Authority and Financial Conduct Authority for private customers and/or the UK compensation scheme may not be available, and further details as to where this may be the case are available upon request in respect of this report.

CS may provide various services to US municipal entities or obligated persons ("municipalities"), including suggesting individual transactions or trades and entering into such transactions. Any services CS provides to municipalities are not viewed as "advice" within the meaning of Section 975 of the Dodd-Frank Wall Street Reform and Consumer Protection Act. CS is providing any such services and related information solely on an arm's length basis and not as an advisor or fiduciary to the municipality. In connection with the provision of the any such services, there is no agreement, direct or indirect, between any municipality (including the officials, management, employees or agents thereof) and CS for CS to provide advice to the municipality. Municipalities should consult with their financial, accounting and legal advisors regarding any such services provided by CS. In addition, CS is not acting for direct or indirect compensation to solicit the municipality on behalf of an unaffiliated broker, dealer, municipal securities dealer, municipal advisor, or investment adviser for the purpose of obtaining or retaining an engagement by the municipality for or in connection with Municipal Financial Products, the issuance of municipal securities, or of an investment adviser to provide investment advisory services to or on behalf of the municipality. If this report is being distributed by a financial institution other than Credit Suisse AG, or its affiliates, that financial institution is solely responsible for distribution. Clients of that institution should contact that institution to effect a transaction in the securities mentioned in this report or require further information. This report does not constitute investment advice by Credit Suisse to the clients of the distributing financial institution, and neither Credit Suisse AG, its affiliates, and their respective officers, directors and employees accept any liability whatsoever for any direct or consequential loss arising from their use of this report or its content. Principal is not guaranteed. Commission is the commission rate or the amount agreed with a customer when setting up an account or at any time after that. No information or communication provided herein or otherwise is intended to be, or should be construed as, a recommendation within the meaning of the US Department of Labor's final regulation defining "investment advice" for purposes of the Employee Retirement Income Security Act of 1974, as amended and Section 4975 of the Internal Revenue Code of 1986, as amended, and the information provided herein is intended to be general information, and should not be construed as, providing investment advice (impartial or otherwise).

Copyright © 2019 CREDIT SUISSE AG and/or its affiliates. All rights reserved.

Investment principal on bonds can be eroded depending on sale price or market price. In addition, there are bonds on which investment principal can be eroded due to changes in redemption amounts. Care is required when investing in such instruments.

When you purchase non-listed Japanese fixed income securities (Japanese government bonds, Japanese municipal bonds, Japanese government guaranteed bonds, Japanese corporate bonds) from CS as a seller, you will be requested to pay the purchase price only.

Exhibit 10



Capital discipline: but lower guidance still not enough to offset the mix shift to gas

Reiterate Rating: UNDERPERFORM | PO: 33.00 USD | Price: 29.97 USD

Equity | 08 February 2019

Announced a \$2.4bn budget assuming \$53 WTI / \$2.80 HH

APA announced a 2019 budget of ~\$2.4bn, which is set to be 'cashflow neutral including dividends' at \$53 WTI/\$2.80, and down from \$3bn in 2018. Production is now expected towards the middle of a prior guidance range of 410-440 Mboe/d, down from 'high-end' expected previously. 4Q18-4Q19 growth rates are set at 6-10% (corp), 12-16% (US) and 5% for Permian oil while international is expected to decline slightly. Underlining its commitment to capital discipline management intends to return >50% of free cash flow above its plan, to shareholders or debt reduction - essentially adding APA to the growing list of companies capping spending.

In-line w/ our expectations but trajectory backend loaded

APA's updated guidance is within sight of our assumptions (Capex \$2.4bn, production 424,000 boepd), where we had capped spending at \$50 WTI - although note around 22% of APA's production (Egypt, NSea) is Brent linked. However APA's production trajectory has growth back end loaded in 2H19 as three cryogenic plants come on-line. Permian oil growth and international production are directionally in-line with our expectations, with Alpine high making up the difference to APA's targets. For 2019, we now expect average production of 430 Mboe/d with flat production in 1H19 vs 4Q18.

Retain Underperform: PO unchanged at \$33

APA's prior guidance suggested production at the high end of its 410,000 boepd – 440,000 boepd guidance; critically, management's prior guide also targeted 475,000 – 510,000 boepd which now looks stale and will likely be updated with 4Q18 earnings in our view. In our view, APA's pivot to greater capital discipline and return of cash will be positively received – but the offset is potentially a slower rate of growth that nets to a forward outlook we continue to see as challenged versus oil levered peers where our constructive outlook for oil and cautious view on US natural gas leaves APA's forward multiple compression amongst the lowest in the sector with incremental cash flow growth per share diluted by the swing in US production mix towards gas. Lower guidance on a lower multiple is unlikely to change the outcome: Underperform.

Estimates (Dec)

(US\$)	2016A	2017A	2018E	2019E	2020E
EPS	(1.18)	0.24	1.63	0.67	1.08
GAAP EPS	(3.36)	3.93	2.01	1.29	1.70
EPS Change (YoY)	NM	NM	579.2%	-58.9%	61.2%
Consensus EPS (Bloomberg)			1.70	0.49	1.05
DPS	1.00	1.00	1.00	1.00	1.00

Valuation (Dec)

	2016A	2017A	2018E	2019E	2020E
P/E	NM	124.9x	18.4x	44.7x	27.8x
GAAP P/E	NM	7.6x	14.9x	23.2x	17.6x
Dividend Yield	3.3%	3.3%	3.3%	3.3%	3.3%
EV / EBITDA*	10.7x	4.7x	4.0x	4.4x	4.2x
Free Cash Flow Yield*	5.9%	-1.5%	1.1%	7.1%	11.1%

* For full definitions of *IQmethod*SM measures, see page 5.

Doug Leggate

Research Analyst
MLPF&S
+1 713 247 6013
doug.leggate@baml.com

John H. Abbott

Research Analyst
MLPF&S
+1 713 247 7144
john.h.abbott@baml.com

Kalei Akamine

Research Analyst
MLPF&S
+1 713 247 7880
kalei.akamine@baml.com

Stock Data

Price	29.97 USD
Price Objective	33.00 USD
Date Established	4-Jan-2019
Investment Opinion	B-3-7
52-Week Range	24.56 USD - 50.03 USD
Mkt Val (mn) / Shares Out (mn)	11,538 USD / 385.0
Average Daily Value (mn)	145.89 USD
BofAML Ticker / Ex change	APA / NYS
Bloomberg / Reuters	APA US / APA.N
ROE (2018E)	8.4%
Net Dbt to Eqty (Dec-2017A)	77.5%

BofA Merrill Lynch does and seeks to do business with issuers covered in its research reports. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision.

Refer to important disclosures on page 6 to 8. Analyst Certification on page 4. Price Objective Basis/Risk on page 4.

11963237

Timestamp: 08 February 2019 10:07AM EST

iQprofileSM Apache Corp

iQmethodSM – Bus Performance*

(US\$ Millions)	2016A	2017A	2018E	2019E	2020E
Return on Capital Employed	-4.2%	5.8%	5.4%	4.1%	4.6%
Return on Equity	-6.3%	1.3%	8.4%	3.4%	5.5%
Operating Margin	-23.6%	22.3%	28.6%	23.1%	24.5%
Free Cash Flow	685	(173)	132	821	1,284

iQmethodSM – Quality of Earnings*

(US\$ Millions)	2016A	2017A	2018E	2019E	2020E
Cash Realization Ratio	NM	27.7x	5.8x	13.6x	9.2x
Asset Replacement Ratio	0.7x	1.3x	1.5x	1.1x	1.0x
Tax Rate	26.3%	NM	53.1%	60.3%	55.1%
Net Debt-to-Equity Ratio	93.3%	77.5%	88.0%	87.7%	80.5%
Interest Cover	-3.0x	3.3x	4.4x	4.3x	5.0x

Income Statement Data (Dec)

(US\$ Millions)	2016A	2017A	2018E	2019E	2020E
Sales	5,367	5,887	7,425	6,984	7,379
% Change	-17.6%	9.7%	26.1%	-5.9%	5.7%
Gross Profit	3,534	4,693	5,440	4,991	5,288
% Change	-22.2%	32.8%	15.9%	-8.2%	6.0%
EBITDA	1,826	4,144	4,856	4,421	4,718
% Change	NM	126.9%	17.2%	-9.0%	6.7%
Net Interest & Other Income	(417)	(397)	(479)	(374)	(359)
Net Income (Adjusted)	(447)	92	627	254	413
% Change	NM	NM	581.7%	-59.5%	62.3%

Free Cash Flow Data (Dec)

(US\$ Millions)	2016A	2017A	2018E	2019E	2020E
Net Income from Cont Operations (GAAP)	(1,273)	1,502	772	493	649
Depreciation & Amortization	2,618	2,280	2,404	2,561	2,663
Change in Working Capital	153	(136)	0	0	0
Deferred Taxation Charge	(833)	(958)	29	(31)	30
Other Adjustments, Net	1,788	(144)	423	439	439
Capital Expenditure	(1,768)	(2,717)	(3,496)	(2,640)	(2,498)
Free Cash Flow	685	-173	132	821	1,284
% Change	NM	NM	NM	522.1%	56.3%

Balance Sheet Data (Dec)

(US\$ Millions)	2016A	2017A	2018E	2019E	2020E
Cash & Equivalents	1,377	1,668	433	478	478
Trade Receivables	1,128	1,375	1,982	1,982	1,982
Other Current Assets	736	682	682	682	682
Property, Plant & Equipment	18,867	17,759	18,087	17,979	17,627
Other Non-Current Assets	411	438	452	452	452
Total Assets	22,519	21,922	21,636	21,573	21,221
Short-Term Debt	0	550	150	150	150
Other Current Liabilities	1,843	2,014	1,942	1,942	1,942
Long-Term Debt	8,544	7,934	8,053	7,958	7,357
Other Non-Current Liabilities	4,453	2,633	2,657	2,819	3,042
Total Liabilities	14,840	13,131	12,802	12,869	12,491
Total Equity	7,679	8,791	8,834	8,704	8,730
Total Equity & Liabilities	22,519	21,922	21,636	21,573	21,221

* For full definitions of iQmethodSM measures, see page 5.

Company Sector

Oil & Gas Producers

Company Description

APA is one of the largest US E&P companies with 2.3 BBOE of proven reserves (63% liquids). It is an acquirer/exploiter/explorer, fiscally conservative company that has grown its reserves and production consistently via acquisitions and organic projects. Operations are focused in the US, Egypt, and the North Sea.

Investment Rationale

Our Underperform rating on APA reflects uncertainty around the scale, timing and cash flow impact of accelerating gas production in the Permian. While recent incremental disclosure has been welcomed, the skew towards gas from oil remains a headwind which we expect to keep incremental DACF per share growth lagging peers

Stock Data

Average Daily Volume 4,867,998

Quarterly Earnings Estimates

	2017	2018
Q1	0.08A	0.28A
Q2	-0.21A	0.50A
Q3	0.04A	0.63A
Q4	0.33A	0.22E

Estimate changes

Adjusting for 2019 outlook, our estimates change as follows

Table 1: APA Earnings Estimates

	Q1	Q2	Q3	Q4	FY	Bloomberg Consensus
2017A	0.08	(0.21)	0.04	0.33	0.24	0.11
2018E	0.28	0.50	0.63	0.22	1.63	1.70
Previous	0.28	0.50	0.63	0.21	1.62	n/a
2019E	(0.05)	0.08	0.39	0.24	0.67	0.48
Previous	(0.03)	0.10	0.42	0.28	0.77	n/a
2020E	0.27	0.25	0.28	0.28	1.08	1.04
Previous	0.29	0.28	0.31	0.31	1.19	n/a

Source: BofA Merrill Lynch Global Research, Bloomberg

Price objective basis & risk

Apache Corp (APA)

Our price objective of \$33/share is based on a three year outlook which assumes a 6.0x DACF multiple and a commodity deck of \$60 WTI/\$65 Brent/\$2.75 HH. The multiple is based on a finite timeline to delivery that is supported by core NAV.

Upside risks to achieving our price objective are: higher than forecasted production and commodity prices. Downside risks to achieving our price objective are: (1) A significant portion of APA's production (22%) is in Egypt, where political risk may result in a partial or complete loss of asset value there, (2) Project timing delays could impact our growth rates, and (3) As an oil leveraged company, a weak oil price environment would affect our estimates and valuation.

Analyst Certification

I, Doug Leggate, hereby certify that the views expressed in this research report accurately reflect my personal views about the subject securities and issuers. I also certify that no part of my compensation was, is, or will be, directly or indirectly, related to the specific recommendations or view expressed in this research report.

US - Large Cap Oils Coverage Cluster

Investment rating	Company	BofA Merrill Lynch ticker	Bloomberg symbol	Analyst
BUY				
	Anadarko Petroleum Corp.	APC	APC US	Doug Leggate
	Cimarex Energy	XEC	XEC US	Doug Leggate
	Concho Resources	CXO	CXO US	Doug Leggate
	Continental Resources Inc.	CLR	CLR US	Doug Leggate
	Devon Energy Corp.	DVN	DVN US	Doug Leggate
	ExxonMobil Corp.	XOM	XOM US	Doug Leggate
	Hess Corp.	HES	HES US	Doug Leggate
	Marathon Oil Corp.	MRO	MRO US	Doug Leggate
	Marathon Petroleum Company	MPC	MPC US	Doug Leggate
	Newfield Exploration Co.	NFX	NFX US	Doug Leggate
	Noble Energy	NBL	NBL US	Doug Leggate
	Occidental Petroleum Corp.	OXY	OXY US	Doug Leggate
	Pioneer Natural Resources	PXD	PXD US	Doug Leggate
	Valero Energy Corp.	VLO	VLO US	Doug Leggate
NEUTRAL				
	California Resources Corporation	CRC	CRC US	Doug Leggate
	Chevron Corp.	CVX	CVX US	Doug Leggate
	ConocoPhillips	COP	COP US	Doug Leggate
	Delek US Holdings, Inc.	DK	DK US	Doug Leggate
	EOG Resources	EOG	EOG US	Doug Leggate
	Phillips 66	PSX	PSX US	Doug Leggate
UNDERPERFORM				
	Apache Corp	APA	APA US	Doug Leggate
	Cabot Oil & Gas Corp.	COG	COG US	Doug Leggate
	Chesapeake Energy Corp.	CHK	CHK US	Doug Leggate
	Holly Frontier Corp	HFC	HFC US	Doug Leggate
	PBF Energy	PBF	PBF US	Doug Leggate
	Range Resources Corp	RRC	RRC US	Doug Leggate
	Southwestern Energy Corp.	SWN	SWN US	Doug Leggate

iQ^{method}™ Measures Definitions

Business Performance	Numerator	Denominator
Return On Capital Employed	$\text{NOPAT} = (\text{EBIT} + \text{Interest Income}) * (1 - \text{Tax Rate}) + \text{Goodwill Amortization}$	$\text{Total Assets} - \text{Current Liabilities} + \text{ST Debt} + \text{Accumulated Goodwill Amortization}$
Return On Equity	Net Income	Shareholders' Equity
Operating Margin	Operating Profit	Sales
Earnings Growth	Expected 5-Year CAGR From Latest Actual	N/A
Free Cash Flow	Cash Flow From Operations – Total Capex	N/A
Quality of Earnings		
Cash Realization Ratio	Cash Flow From Operations	Net Income
Asset Replacement Ratio	Capex	Depreciation
Tax Rate	Tax Charge	Pre-Tax Income
Net Debt-To-Equity Ratio	$\text{Net Debt} = \text{Total Debt, Less Cash \& Equivalents}$	Total Equity
Interest Cover	EBIT	Interest Expense
Valuation Toolkit		
Price / Earnings Ratio	Current Share Price	Diluted Earnings Per Share (Basis As Specified)
Price / Book Value	Current Share Price	Shareholders' Equity / Current Basic Shares
Dividend Yield	Annualised Declared Cash Dividend	Current Share Price
Free Cash Flow Yield	Cash Flow From Operations – Total Capex	$\text{Market Cap.} = \text{Current Share Price} * \text{Current Basic Shares}$
Enterprise Value / Sales	$\text{EV} = \text{Current Share Price} * \text{Current Shares} + \text{Minority Equity} + \text{Net Debt} + \text{Other LT Liabilities}$	Sales
EV / EBITDA	Enterprise Value	$\text{Basic EBIT} + \text{Depreciation} + \text{Amortization}$

iQ^{method}™ is the set of BofA Merrill Lynch standard measures that serve to maintain global consistency under three broad headings: Business Performance, Quality of Earnings, and valuations. The key features of *iQ^{method}* are: A consistently structured, detailed, and transparent methodology. Guidelines to maximize the effectiveness of the comparative valuation process, and to identify some common pitfalls.

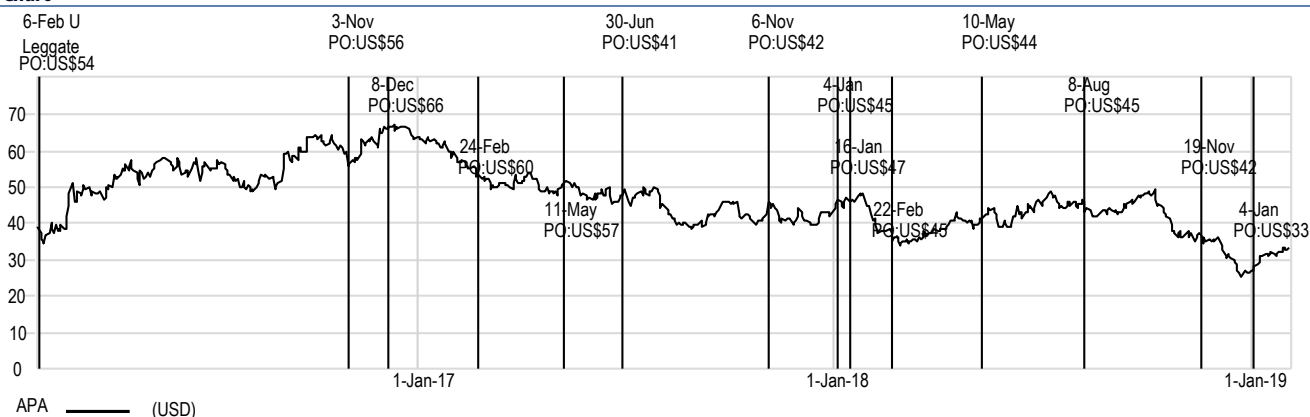
iQ^{database}™ is our real-time global research database that is sourced directly from our equity analysts' earnings models and includes forecasted as well as historical data for income statements, balance sheets, and cash flow statements for companies covered by BofA Merrill Lynch.

iQ^{profile}™, *iQ^{method}™* are service marks of Bank of America Corporation. *iQ^{database}™* is a registered service mark of Bank of America Corporation.

Disclosures

Important Disclosures

APA Price Chart



B: Buy, N: Neutral, U: Underperform, PO: Price Objective, NA: No longer valid, NR: No Rating

The Investment Opinion System is contained at the end of the report under the heading "Fundamental Equity Opinion Key". Dark grey shading indicates the security is restricted with the opinion suspended. Medium grey shading indicates the security is under review with the opinion withdrawn. Light grey shading indicates the security is not covered. Chart is current as of January 31, 2019 or such later date as indicated.

Equity Investment Rating Distribution: Energy Group (as of 31 Dec 2018)

Coverage Universe	Count	Percent	Inv. Banking Relationships*	Count	Percent
Buy	114	60.64%	Buy	86	75.44%
Hold	36	19.15%	Hold	26	72.22%
Sell	38	20.21%	Sell	16	42.11%

Equity Investment Rating Distribution: Global Group (as of 31 Dec 2018)

Coverage Universe	Count	Percent	Inv. Banking Relationships*	Count	Percent
Buy	1586	53.69%	Buy	1017	64.12%
Hold	690	23.36%	Hold	432	62.61%
Sell	678	22.95%	Sell	328	48.38%

* Issuers that were investment banking clients of BofA Merrill Lynch or one of its affiliates within the past 12 months. For purposes of this Investment Rating Distribution, the coverage universe includes only stocks. A stock rated Neutral is included as a Hold, and a stock rated Underperform is included as a Sell.

FUNDAMENTAL EQUITY OPINION KEY: Opinions include a Volatility Risk Rating, an Investment Rating and an Income Rating. **VOLATILITY RISK RATINGS**, indicators of potential price fluctuation, are: **A - Low**, **B - Medium** and **C - High**. **INVESTMENT RATINGS** reflect the analyst's assessment of a stock's: (i) absolute total return potential and (ii) attractiveness for investment relative to other stocks within its Coverage Cluster (defined below). There are three investment ratings: **1 - Buy** stocks are expected to have a total return of at least 10% and are the most attractive stocks in the coverage cluster; **2 - Neutral** stocks are expected to remain flat or increase in value and are less attractive than Buy rated stocks and **3 - Underperform** stocks are the least attractive stocks in a coverage cluster. Analysts assign investment ratings considering, among other things, the 0-12 month total return expectation for a stock and the firm's guidelines for ratings dispersions (shown in the table below). The current price objective for a stock should be referenced to better understand the total return expectation at any given time. The price objective reflects the analyst's view of the potential price appreciation (depreciation).

Investment rating	Total return expectation (within 12-month period of date of initial rating)	Ratings dispersion guidelines for coverage cluster*
Buy	≥ 10%	≤ 70%
Neutral	≥ 0%	≤ 30%
Underperform	N/A	≥ 20%

* Ratings dispersions may vary from time to time where BofA Merrill Lynch Research believes it better reflects the investment prospects of stocks in a Coverage Cluster.

INCOME RATINGS, indicators of potential cash dividends, are: **7 - same/higher** (dividend considered to be secure), **8 - same/lower** (dividend not considered to be secure) and **9 - pays no cash dividend**. Coverage Cluster is comprised of stocks covered by a single analyst or two or more analysts sharing a common industry, sector, region or other classification(s). A stock's coverage cluster is included in the most recent BofA Merrill Lynch report referencing the stock.

Price charts for the securities referenced in this research report are available at <https://pricecharts.baml.com>, or call 1-800-MERRILL to have them mailed.

MLPF&S or one of its affiliates acts as a market maker for the equity securities recommended in the report: Apache Corp.

MLPF&S or an affiliate was a manager of a public offering of securities of this issuer within the last 12 months: Apache Corp.

The issuer is or was, within the last 12 months, an investment banking client of MLPF&S and/or one or more of its affiliates: Apache Corp.

MLPF&S or an affiliate has received compensation from the issuer for non-investment banking services or products within the past 12 months: Apache Corp.

The issuer is or was, within the last 12 months, a non-securities business client of MLPF&S and/or one or more of its affiliates: Apache Corp.

MLPF&S or an affiliate has received compensation for investment banking services from this issuer within the past 12 months: Apache Corp.

MLPF&S or an affiliate expects to receive or intends to seek compensation for investment banking services from this issuer or an affiliate of the issuer within the next three months: Apache Corp.

MLPF&S or one of its affiliates is willing to sell to, or buy from, clients the equity securities of the issuer on a principal basis: Apache Corp.

The issuer is or was, within the last 12 months, a securities business client (non-investment banking) of MLPF&S and/or one or more of its affiliates: Apache Corp.

BofA Merrill Lynch Research Personnel (including the analyst(s) responsible for this report) receive compensation based upon, among other factors, the overall profitability of Bank of America Corporation, including profits derived from investment banking. The analyst(s) responsible for this report may also receive compensation based upon, among other factors, the overall profitability of the Bank's sales and trading businesses relating to the class of securities or financial instruments for which such analyst is responsible.

Other Important Disclosures

From time to time research analysts conduct site visits of covered issuers. BofA Merrill Lynch policies prohibit research analysts from accepting payment or reimbursement for travel expenses from the issuer for such visits.

Prices are indicative and for information purposes only. Except as otherwise stated in the report, for the purpose of any recommendation in relation to: (i) an equity security, the price referenced is the publicly traded price of the security as of close of business on the day prior to the date of the report or, if the report is published during intraday trading, the price referenced is indicative of the traded price as of the date and time of the report; or (ii) a debt security (including equity preferred and CDS), prices are indicative as of the date and time of the report and are from various sources including Bank of America Merrill Lynch trading desks.

The date and time of completion of the production of any recommendation in this report shall be the date and time of dissemination of this report as recorded in the report timestamp.

Recipients who are not institutional investors or market professionals should seek the advice of their independent financial advisor before considering information in this report in connection with any investment decision, or for a necessary explanation of its contents.

Officers of MLPF&S or one or more of its affiliates (other than research analysts) may have a financial interest in securities of the issuer(s) or in related investments.

BofA Merrill Lynch Global Research policies relating to conflicts of interest are described at <https://rsch.baml.com/col>

"BofA Merrill Lynch" includes Merrill Lynch, Pierce, Fenner & Smith Incorporated ("MLPF&S") and its affiliates. Investors should contact their BofA Merrill Lynch representative or Merrill Lynch Global Wealth Management financial advisor if they have questions concerning this report or concerning the appropriateness of any investment idea described herein for such investor. "BofA Merrill Lynch" and "Merrill Lynch" are each global brands for BofA Merrill Lynch Global Research.

Information relating to Non-US affiliates of BofA Merrill Lynch and Distribution of Affiliate Research Reports:

MLPF&S distributes, or may in the future distribute, information of the following non-US affiliates in the US (short name: legal name, regulator): Merrill Lynch (South Africa): Merrill Lynch South Africa (Pty) Ltd., regulated by The Financial Service Board; MLI (UK): Merrill Lynch International, regulated by the Financial Conduct Authority (FCA) and the Prudential Regulation Authority (PRA); BAMLI DAC (Paris): Bank of America Merrill Lynch International DAC, Succursale en France, regulated by the Autorité de Contrôle Prudentiel et de Résolution and the Autorité des Marchés Financiers, the European Central Bank (ECB) and the Central Bank of Ireland (CBI); BAMLI DAC (Milan): Bank of America Merrill Lynch International DAC, Milan Branch, regulated by the Bank of Italy, the ECB and the CBI; Merrill Lynch (Australia): Merrill Lynch Equities (Australia) Limited, regulated by the Australian Securities and Investments Commission; Merrill Lynch (Hong Kong): Merrill Lynch (Asia Pacific) Limited, regulated by the Hong Kong Securities and Futures Commission (HKSF); Merrill Lynch (Singapore): Merrill Lynch (Singapore) Pte Ltd, regulated by the Monetary Authority of Singapore (MAS); Merrill Lynch (Canada): Merrill Lynch Canada Inc, regulated by the Investment Industry Regulatory Organization of Canada; Merrill Lynch (Mexico): Merrill Lynch Mexico, SA de CV, Casa de Bolsa, regulated by the Comisión Nacional Bancaria y de Valores; Merrill Lynch (Argentina): Merrill Lynch Argentina SA, regulated by Comisión Nacional de Valores; Merrill Lynch (Japan): Merrill Lynch Japan Securities Co., Ltd., regulated by the Financial Services Agency; Merrill Lynch (Seoul): Merrill Lynch International, LLC Seoul Branch, regulated by the Financial Supervisory Service; Merrill Lynch (Taiwan): Merrill Lynch Securities (Taiwan) Ltd., regulated by the Securities and Futures Bureau; DSP Merrill Lynch (India): DSP Merrill Lynch Limited, regulated by the Securities and Exchange Board of India; Merrill Lynch (Indonesia): PT Merrill Lynch Sekuritas Indonesia, regulated by Otoritas Jasa Keuangan (OJK); Merrill Lynch (Israel): Merrill Lynch Israel Limited, regulated by Israel Securities Authority; Merrill Lynch (Russia): OOO Merrill Lynch Securities, Moscow, regulated by the Central Bank of the Russian Federation; Merrill Lynch (DIFC): Merrill Lynch International (DIFC Branch), regulated by the Dubai Financial Services Authority (DFSA); Merrill Lynch (Spain): Merrill Lynch Capital Markets Espana, S.A.S.V., regulated by Comisión Nacional del Mercado de Valores; Merrill Lynch (Brazil): Bank of America Merrill Lynch Banco Multiplo S.A., regulated by Comissão de Valores Mobiliários; Merrill Lynch KSA Company, Merrill Lynch Kingdom of Saudi Arabia Company, regulated by the Capital Market Authority.

This information has been approved for publication and is distributed in the United Kingdom (UK) to professional clients and eligible counterparties (as each is defined in the rules of the FCA and the PRA) by MLI (UK), which is authorized by the PRA and regulated by the FCA and the PRA - details about the extent of our regulation by the FCA and PRA are available from us on request; has been considered and distributed in Japan by Merrill Lynch (Japan), a registered securities dealer under the Financial Instruments and Exchange Act in Japan, or its permitted affiliates; is issued and distributed in Hong Kong by Merrill Lynch (Hong Kong) which is regulated by HKSF; is issued and distributed in Taiwan by Merrill Lynch (Taiwan); is issued and distributed in India by DSP Merrill Lynch (India); and is issued and distributed in Singapore to institutional investors and/or accredited investors (each as defined under the Financial Advisers Regulations) by Merrill Lynch (Singapore) (Company Registration No 198602883D). Merrill Lynch (Singapore) is regulated by MAS. Bank of America N.A., Australian Branch (ARBN 064 874 531), AFS License 412901 (BANA Australia) and Merrill Lynch Equities (Australia) Limited (ABN 65 006 276 795), AFS License 235132 (MLEA) distribute this information in Australia only to 'Wholesale' clients as defined by s.761G of the Corporations Act 2001. With the exception of BANA Australia, neither MLEA nor any of its affiliates involved in preparing this information is an Authorised Deposit-Taking Institution under the Banking Act 1959 nor regulated by the Australian Prudential Regulation Authority. No approval is required for publication or distribution of this information in Brazil and its local distribution is by Merrill Lynch (Brazil) in accordance with applicable regulations. Merrill Lynch (DIFC) is authorized and regulated by the DFSA. Information prepared and issued by Merrill Lynch (DIFC) is done so in accordance with the requirements of the DFSA conduct of business rules. Bank of America Merrill Lynch International DAC, Frankfurt Branch (BAMLI DAC (Frankfurt)) distributes this information in Germany and is regulated by BaFin, the ECB and the CBI.

This information has been prepared and issued by MLPF&S and/or one or more of its non-US affiliates. The author(s) of this information may not be licensed to carry on regulated activities in your jurisdiction and, if not licensed, do not hold themselves out as being able to do so. MLPF&S is the distributor of this information in the US and accepts full responsibility for information distributed to MLPF&S clients in the US by its non-US affiliates. Any US person receiving this information and wishing to effect any transaction in any security discussed herein should do so through MLPF&S and not such foreign affiliates. Hong Kong recipients of this information should contact Merrill Lynch (Asia Pacific) Limited in respect of any matters relating to dealing in securities or provision of specific advice on securities or any other matters arising from, or in connection with, this information. Singapore recipients of this information should contact Merrill Lynch (Singapore) Pte Ltd in respect of any matters arising from, or in connection with, this information.

General Investment Related Disclosures:

Taiwan Readers: Neither the information nor any opinion expressed herein constitutes an offer or a solicitation of an offer to transact in any securities or other financial instrument. No part of this report may be used or reproduced or quoted in any manner whatsoever in Taiwan by the press or any other person without the express written consent of BofA Merrill Lynch.

This document provides general information only, and has been prepared for, and is intended for general distribution to, BofA Merrill Lynch clients. Neither the information nor any opinion expressed constitutes an offer or an invitation to make an offer, to buy or sell any securities or other financial instrument or any derivative related to such securities or instruments (e.g., options, futures, warrants, and contracts for differences). This document is not intended to provide personal investment advice and it does not take into account the specific investment objectives, financial situation and the particular needs of, and is not directed to, any specific person(s). This document and its content do not constitute, and should not be considered to constitute, investment advice for purposes of ERISA, the US tax code, the Investment Advisers Act or otherwise. Investors should seek financial advice regarding the appropriateness of investing in financial instruments and implementing investment strategies discussed or recommended in this document and should understand that statements regarding future prospects may not be realized. Any decision to purchase or subscribe for securities in any offering must be based solely on existing public information on such security or the information in the prospectus or other offering document issued in connection with such offering, and not on this document.

Securities and other financial instruments referred to herein, or recommended, offered or sold by BofA Merrill Lynch, are not insured by the Federal Deposit Insurance Corporation and are not deposits or other obligations of any insured depository institution (including, Bank of America, N.A.). Investments in general and, derivatives, in particular, involve numerous risks, including, among others, market risk, counterparty default risk and liquidity risk. No security, financial instrument or derivative is suitable for all investors. In some cases, securities and other financial instruments may be difficult to value or sell and reliable information about the value or risks related to the security or financial instrument may be difficult to obtain. Investors should note that income from such securities and other financial instruments, if any, may fluctuate and that price or value of such securities and instruments may rise or fall and, in some cases, investors may lose their entire principal investment. Past performance is not necessarily a guide to future performance. Levels and basis for taxation may change.

This report may contain a short-term trading idea or recommendation, which highlights a specific near-term catalyst or event impacting the issuer or the market that is anticipated to have a short-term price impact on the equity securities of the issuer. Short-term trading ideas and recommendations are different from and do not affect a stock's fundamental equity rating, which reflects both a longer term total return expectation and attractiveness for investment relative to other stocks within its Coverage Cluster. Short-term trading ideas and recommendations may be more or less positive than a stock's fundamental equity rating.

BofA Merrill Lynch is aware that the implementation of the ideas expressed in this report may depend upon an investor's ability to "short" securities or other financial instruments and that such action may be limited by regulations prohibiting or restricting "shortselling" in many jurisdictions. Investors are urged to seek advice regarding the applicability of such regulations prior to executing any short idea contained in this report.

Foreign currency rates of exchange may adversely affect the value, price or income of any security or financial instrument mentioned herein. Investors in such securities and instruments,

including ADRs, effectively assume currency risk

UK Readers: The protections provided by the U.K. regulatory regime, including the Financial Services Scheme, do not apply in general to business coordinated by BofA Merrill Lynch entities located outside of the United Kingdom.

MLPF&S or one of its affiliates is a regular issuer of traded financial instruments linked to securities that may have been recommended in this report. MLPF&S or one of its affiliates may, at any time, hold a trading position (long or short) in the securities and financial instruments discussed in this report.

BofA Merrill Lynch, through business units other than BofA Merrill Lynch Global Research, may have issued and may in the future issue trading ideas or recommendations that are inconsistent with, and reach different conclusions from, the information presented herein. Such ideas or recommendations may reflect different time frames, assumptions, views and analytical methods of the persons who prepared them, and BofA Merrill Lynch is under no obligation to ensure that such other trading ideas or recommendations are brought to the attention of any recipient of this information.

In the event that the recipient received this information pursuant to a contract between the recipient and MLPF&S for the provision of research services for a separate fee, and in connection therewith MLPF&S may be deemed to be acting as an investment adviser, such status relates, if at all, solely to the person with whom MLPF&S has contracted directly and does not extend beyond the delivery of this report (unless otherwise agreed specifically in writing by MLPF&S). If such recipient uses the services of MLPF&S in connection with the sale or purchase of a security referred to herein, MLPF&S may act as principal for its own account or as agent for another person. MLPF&S is and continues to act solely as a broker-dealer in connection with the execution of any transactions, including transactions in any securities referred to herein.

Copyright and General Information:

Copyright 2019 Bank of America Corporation. All rights reserved. iQprofileSM, iQmethodSM are service marks of Bank of America Corporation. iQdatabase[®] is a registered service mark of Bank of America Corporation. This information is prepared for the use of BofA Merrill Lynch clients and may not be redistributed, retransmitted or disclosed, in whole or in part, or in any form or manner, without the express written consent of BofA Merrill Lynch. BofA Merrill Lynch Global Research information is distributed simultaneously to internal and client websites and other portals by BofA Merrill Lynch and is not publicly-available material. Any unauthorized use or disclosure is prohibited. Receipt and review of this information constitutes your agreement not to redistribute, retransmit, or disclose to others the contents, opinions, conclusion, or information contained herein (including any investment recommendations, estimates or price targets) without first obtaining express permission from an authorized officer of BofA Merrill Lynch.

Materials prepared by BofA Merrill Lynch Global Research personnel are based on public information. Facts and views presented in this material have not been reviewed by, and may not reflect information known to, professionals in other business areas of BofA Merrill Lynch, including investment banking personnel. BofA Merrill Lynch has established information barriers between BofA Merrill Lynch Global Research and certain business groups. As a result, BofA Merrill Lynch does not disclose certain client relationships with, or compensation received from, such issuers. To the extent this material discusses any legal proceeding or issues, it has not been prepared as nor is it intended to express any legal conclusion, opinion or advice. Investors should consult their own legal advisers as to issues of law relating to the subject matter of this material. BofA Merrill Lynch Global Research personnel's knowledge of legal proceedings in which any BofA Merrill Lynch entity and/or its directors, officers and employees may be plaintiffs, defendants, co-defendants or co-plaintiffs with or involving issuers mentioned in this material is based on public information. Facts and views presented in this material that relate to any such proceedings have not been reviewed by, discussed with, and may not reflect information known to, professionals in other business areas of BofA Merrill Lynch in connection with the legal proceedings or matters relevant to such proceedings.

This information has been prepared independently of any issuer of securities mentioned herein and not in connection with any proposed offering of securities or as agent of any issuer of any securities. None of MLPF&S, any of its affiliates or their research analysts has any authority whatsoever to make any representation or warranty on behalf of the issuer(s). BofA Merrill Lynch Global Research policy prohibits research personnel from disclosing a recommendation, investment rating, or investment thesis for review by an issuer prior to the publication of a research report containing such rating, recommendation or investment thesis.

Any information relating to the tax status of financial instruments discussed herein is not intended to provide tax advice or to be used by anyone to provide tax advice. Investors are urged to seek tax advice based on their particular circumstances from an independent tax professional.

The information herein (other than disclosure information relating to BofA Merrill Lynch and its affiliates) was obtained from various sources and we do not guarantee its accuracy. This information may contain links to third-party websites. BofA Merrill Lynch is not responsible for the content of any third-party website or any linked content contained in a third-party website. Content contained on such third-party websites is not part of this information and is not incorporated by reference. The inclusion of a link does not imply any endorsement by or any affiliation with BofA Merrill Lynch. Access to any third-party website is at your own risk, and you should always review the terms and privacy policies at third-party websites before submitting any personal information to them. BofA Merrill Lynch is not responsible for such terms and privacy policies and expressly disclaims any liability for them.

All opinions, projections and estimates constitute the judgment of the author as of the date of publication and are subject to change without notice. Prices also are subject to change without notice. BofA Merrill Lynch is under no obligation to update this information and BofA Merrill Lynch's ability to publish information on the subject issuer(s) in the future is subject to applicable quiet periods. You should therefore assume that BofA Merrill Lynch will not update any fact, circumstance or opinion contained herein.

Subject to the quiet period applicable under laws of the various jurisdictions in which we distribute research reports and other legal and BofA Merrill Lynch policy-related restrictions on the publication of research reports, fundamental equity reports are produced on a regular basis as necessary to keep the investment recommendation current.

Certain outstanding reports or investment opinions relating to securities, financial instruments and/or issuers may no longer be current. Always refer to the most recent research report relating to an issuer prior to making an investment decision.

In some cases, an issuer may be classified as Restricted or may be Under Review or Extended Review. In each case, investors should consider any investment opinion relating to such issuer (or its security and/or financial instruments) to be suspended or withdrawn and should not rely on the analyses and investment opinion(s) pertaining to such issuer (or its securities and/or financial instruments) nor should the analyses or opinion(s) be considered a solicitation of any kind. Sales persons and financial advisors affiliated with MLPF&S or any of its affiliates may not solicit purchases of securities or financial instruments that are Restricted or Under Review and may only solicit securities under Extended Review in accordance with firm policies.

Neither BofA Merrill Lynch nor any officer or employee of BofA Merrill Lynch accepts any liability whatsoever for any direct, indirect or consequential damages or losses arising from any use of this information.